

Inside

INNER CITY: Paul Flather reports on the ESRC's latest attempt to establish an index to measure social deprivation in Britain's distressed cities (page 11)

OUTER SPACE: N. C. Wickramasinghe argues that the origins of life on earth are to be discovered in the clouds of deep-frozen bacteria in the cosmic dust (page 13)



Roland Hurst argues that universities must put much more effort into PR if they are to win greater political and industrial support and improved funding (page 15)

R. W. Davies reviews a revisionist account of Stalin's GREAT PURGES of the 1930s and concludes that it seriously underestimates both their scale and purpose (page 17)

Twenty-six recently published SCIENCE JOURNALS on subjects ranging from molecular graphics to automated reasoning are reviewed in a special 10-page report (pages 23-32)

H. MacL. Currie on Walter Pater's 19th century rediscovery of MORAL PURPOSE in art

Home news	1-7
Patrick Nutgens	2
Letters to the editor	2
Don's Diary (Sally Tomlinson)	4
Party Line (Jack Straw MP)	6
Union View (AUT)	7
Overseas news	8-9
Articles	10-15
Noticeboard	16
Books	17-22
Science journals	23-32
Classified advertising	33-39

Next Week

The Japanese invasion of the campus
English as she is (not) spoke
John Dixon Hunt on Alexander Pope
New books in environmental science



HIGHER EDUCATION SUPPLEMENT
Priority House, St John's Lane, London EC1M 4BX. Telephone 01-253 3000

Northern pride

One interpretation, cynical, unfair and paranoid, of the 1981 university cuts was that the old establishment centred in Oxford, Cambridge, London and the big civics sacrificed that post-war accretion made up of the new universities founded in the 1960s and the former colleges of advanced technology. At a first brief glance it seemed just about plausible; in July 1981 the University Grants Committee did discriminate most heavily against Aston, Salford and Bradford and universities like Sussex abruptly lost that "favourite son" status which had been abscondingly assumed for them.

But even the most sketchy analysis of the pattern of cuts imposed by the UGC four years ago explodes this theory of a conspiracy by an entrenched and conservative establishment against those universities with more progressive traditions and a more modern ethos, whether the broader social role allegedly adopted by the new universities or the deep industrial roots of the former CATs. For among the most protected universities in 1981 were both former CATs like Bath and Loughborough and new universities like York. And among those that suffered larger-than-average cuts were big civics that should have been spared as members of this shadowy establishment.

Now the universities, after the briefest of breathing spaces, are on the brink of a new period of cuts at least as serious as those so dramatically imposed in 1981. In percentage terms they may be less, although as no end has been promised to the depressing prospect of an annual and cumulative 2 per cent squeeze even this is not certain. But the financial base of the universities has been very much weakened and all the easy economies have already been exploited.

By the early 1990s the pattern of universities in Britain will have changed as much again as it has already changed since 1975. The process may be more protracted, partly because this time the cuts are not to be compressed into a brief three-year period and partly because Sir Peter Swinnerton-Dyer, the chairman of the UGC, has promised that no university will suffer a cut of more than 1½ per cent in excess of the 2 per cent decline for the system as a whole. The process may also be more open; the paper (lots of it) will be on the table about research strengths, financial forecasts and student numbers.

Whether these differences between how the UGC operated in 1980/81 and how the committee plans to work in future will be enough to inhibit the growth of conspiracy theories about its covert or maybe even sub-conscious intentions remains to be proved. Probably not. The universities which lose will resent their loss in any case, while those which are favoured will not object to the precise methodology of their (relative) success. Part of the fight-back by the former inevitably will include some attempt to undermine the credibility of the UGC by caricaturing its motives, while the latter will stay mum in a confusion of guilt and self-satisfaction.

The conspiracy theory that will be produced to explain the coming changes in universities will be a first cousin of that which was popular two or three years ago as an interpretation of the 1981 cuts. Then the line-up was alleged to be a conservative establishment made up of Oxford, London and the big respectable civics against the more vulnerable newcomers, the new universities with their jaded trendiness and the former CATs with their industrial mediocrity. The rather thin ideological sub-plot was the defence of traditional academic values against the competitive demands of relevance, whether social or vocational.

In the version that will become popular in the late 1980s the line-up will be modified. The fortunate establishment will have shrunk still further to its Oxbridge-London core, and been

redefined, to include those universities which benefit from the shape of Britain's social geography in the 1980s (Bristol? Exeter?) and from the high-tech industrialization of the south (Southampton?). The new outsiders will be the big civics of the North and maybe the Midlands, which will find it more difficult to maintain their old places in the academic core as research resources diminish and are re-concentrated and which will be caught up increasingly in the de-industrialization of their regions. So the new conspiracy theory will be a mixture of Oxbridge's revenge and North versus South.

The UGC will have to take notice of this mark-two conspiracy theory, mainly because it will be widely believed, but partly because it will contain a few grains of truth. The committee has less room for manoeuvre than some of its members may imagine. The formality and novelty of the planning exercise on which the UGC is engaged may suggest that it is starting with a clean sheet. In practice it is hemmed in on the one side by the inheritance of 1981 and on the other by the political overlay that will be provided by the Department of Education and Science. Their combination could very well produce a pattern of universities in the 1990s not unrecognizably different from that suggested by the conspiracy theory.

The inheritance of 1981 means three things. First, the UGC cannot really go back on its assessment of successful universities without gravely undermining its own credibility and removing what little capacity is left in the university system for sensible planning, so the Baths and Yorks can hardly be made the main targets in the next round of cuts. Second, the UGC

"By 1990 what was regarded only yesterday as the heartland of British universities will be under siege"

cannot have another go at the technological universities, Aston and Salford, the two main sufferers in 1981, have now been firmly designated as success stories - and who dares contradict John Ashworth!

Third, the other universities that were hit hard in 1981 were often small and barely able to sustain this first shock. A second shock would almost certainly be fatal. So the UGC cannot be too severe with universities like Hull and Keele (and Lancaster?). Cuts in their grant that left them still viable would make only a small contribution to the savings which the UGC is required to make. The committee, of course, could recommend that Sir Keith Joseph, or his successor as Secretary of State for Education and Science, close a handful of struggling universities, although even then any contribution to required savings would remain modest.

But at this point the political overlay, which in true British fashion is likely to be exercised through the UGC's defence rather than the DES's discretion, becomes important. The last thing ministers want to hear from the UGC is that all the problems of the universities can be solved by the UGC in a Bygones-style with a few controversial executions - especially as it is they not the UGC who would have to pull the trigger. However tough the present political rhetoric, there is an effective taboo on university closures.

So where does the UGC turn next in its search for savings? Scotland and Wales? The ghost of devolution has not been confidently enough exorcised for that. In any case the Scottish and Welsh Offices will surely have their own political overlays to inhibit still further the free judgement of the UGC. In

Scotland the creation of the Scottish Tertiary Education Advisory Council has led to a slow but sure erosion of the formerly unqualified direction enjoyed by the DES and the UGC over the Scottish universities.

What about Oxford and Cambridge, or London? The UGC of course is unlikely to want to make savage cuts here, for the very good reason that so much of the universities' talent is concentrated in these three institutions. But even if the committee wanted to make substantial savings in the more than half a billion pounds they receive annually, it would be a difficult job. Oxford and Cambridge could easily find an alternative role as finishing schools for the world's elites or campuses of the multinational academy - hardly the direction in which any British Government would want to push its two best universities.

With London the difficulty would be no less tractable. Certainly the southeast has more than its share of higher education. But any attempt to produce a better regional balance would be a messy trans-binary business. Just how messy was demonstrated last year by the failure of the proposed merger between the City University and the City of London Polytechnic. The DES and the UGC seemed to think this would mean off-loading the City University on the Inner London Education Authority, while the ILEA appeared to regard the merger as a neat way to reduce the number of its polytechnics by exporting one to the university sector. Within that sector London University has already risen to the challenge of rationalization, as has Brunel on a smaller scale. The UGC can hardly afford to punish such virtuous behaviour.

So which universities can the UGC squeeze to achieve the savings demanded by the Government? The sad answer seems to be, by process of elimination as much as anything else, the civic and older redbrick universities which not so long ago were regarded as the bed-rock of the system. They are big, which under present perverse circumstances carries a triple penalty first, their UGC grant is large so large savings are possible; second, their income can be cut without any danger of collapse or closure; third, in a post-Iarratt world they appear to offer considerable scope for greater efficiency. Unlike the Scots and the Welsh they can rely on no semi-nationalist lobby. Instead they are compromised by the industrial and, for the moment, political weaknesses of their home regions, the north and the industrial Midlands.

These are also the universities in which the mass of research is still done, despite the growing reputations of the new universities and the historic hegemony of the Oxford-Cambridge-London triangle. So they are perhaps especially vulnerable to the UGC's new selective research policy. Some, maybe even in the UGC, will say that they are rightly vulnerable, that the gap between the Manchester and Leeds and the Oxforas and the Imperial Colleges is much wider than it was in the 1950s and 1960s in terms of scientific productivity and scholarly excellence, and that the flood of retirements since 1981 has widened this gap still further.

That has still to be proved. But perhaps the most alarming feature of the predicament faced by the UGC today is that, because so many options have already been foreclosed, it almost has a vested interest in reaching this harsh conclusion that the great civics are past their peak or have grown flabby. Such a conclusion might justify decisions that were in any case inevitable, for largely non-academic reasons. But maybe to suggest this is to stray back into that forbidden territory of conspiracy theory. Perhaps it is enough to say that by 1990 what was regarded only yesterday as the heartland of British universities may be under siege.

Laurie Taylor



THE ASSOCIATION OF UNIVERSITY TEACHERS
Rectify the Anomaly - Stop the Erosion

Dear Member,
I am now writing to you in connection with the recent ballot which we held in order to establish your views on the present salary negotiations. You will recall that you were asked to respond YES or NO to EIGHT statements. These are reprinted below together with the appropriate percentage vote.

1 I agree that I no longer have the faintest idea of how many meetings of Committee A have been held since the discussions on salary started more than seven months ago.
YES 30% NO 70%

2 I agree that, given the present plight of university teachers, the sight of some regional executives of NATFHE recommending their members not to accept the present offer of 7 per cent is positively galling.
YES 40% NO 60%

3 I agree that we're probably all sitting around waiting to see what the schoolteachers will get and that no part of this will not make the slightest difference to our own settlement.
YES 50% NO 50%

4 I agree that someone did mention that next year's proposed settlement was going to be 3 per cent but I pretended not to hear them.
YES 60% NO 40%

5 I agree that it's had enough having to put up with such a diabolical pay offer without also learning that the amg VUCP has been touting up to Sir Keith by promising to work out ways of evaluating lecturers' performance.
YES 70% NO 30%

6 I agree that one morning during the vacation when I should have been marking a PhD I calculated what the new salaries would have been for university lecturers if they had received the average increases for top Civil Servants and as a result got too such a state that I stabbed right through the cover of the dissertation with my paper-knife.
YES 80% NO 20%

7 I agree that given the present level of militancy among some of my colleagues there's about as much chance of forcing the Government to give us a better deal as there is of Sir Keith enrolling for a part-time MA in Marxist Studies at Middlesex Poly.
YES 90% NO 10%

8 I agree that last Saturday I found myself in the garage absent-mindedly filling milk bottles with petrol.
YES 100% NO 0%

I'm sure that these replies will be of the greatest assistance to the executive in formulating its future salary campaign.
Yours fraternally
D. J. B. Truscott
(Assistant Research Officer and Deputy Controller Flying Pickets).

© TIMES NEWSPAPERS LIMITED, 1985
Published by Times Newspapers Ltd, P.O. Box 7, 10, Gray's Inn Road, London WC1X 9EZ. Printed by Times Newspapers Ltd, 10, Gray's Inn Road, London WC1X 9EZ. Typesetting by Computer Graphics Ltd, 10, Gray's Inn Road, London WC1X 9EZ. Printed by Times Newspapers Ltd, 10, Gray's Inn Road, London WC1X 9EZ. Printed by Times Newspapers Ltd, 10, Gray's Inn Road, London WC1X 9EZ.

The Times Higher Education Supplement

October 4, 1985 No 674 Price 65p



The life of Pope, 19

V-Cs fear wave of strikes

by David Jobbins

Vice chancellors are to hold crisis talks with Sir Keith Joseph later this month to press home their fears over students' salaries in the face of the first ever strike threats by university lecturers.

They hope to persuade the Secretary of State for Education that only Government action can end the erosion of lecturers' salaries which was underlined by this week's settlement of the college lecturers' pay dispute.

Leaders of the Association of University Teachers, angered that they are not to receive an improved pay offer, have decided to ballot their 30,000 members on the possibility of one-day strikes in the New Year.

It is expected that a token strike will be called to gauge support among the members for industrial action. But union leaders are encouraged by the strong support they received in a ballot on their pay strategy this summer and believe industrial action is the only step now remaining in their battle for an improvement in the 4 per cent offer on the table.

The vice chancellors' proposals were discussed at their retreat in Leicester last week and a firm package is expected to be considered at a full meeting of the Committee of Vice Chancellors and Principals later this month.

As expected the national council of the main college lecturers' union, the National Association of Teachers in Further and Higher Education, voted by 78 to 19 to accept the employers' staged pay offer worth 7 per cent by the end of the year. Lecturers will receive 5 per cent from April 1 and 2 per cent from December 1 conditional on presentation of a joint report dealing with structural changes and feasibility of savings.

But the council was one of the most bitter in the union's history with the left fighting hard against unconditional acceptance of the offer on the grounds that acceptance implied a willingness to trade off conditions of service, and that it was wrong to settle in advance of the schoolteachers.

The Association of Polytechnic Teachers has refused to ratify the deal because it once more gives preferential treatment to further education staff through the inclusion of the automatic transfer from the top point of the lecturers' salary scale.

'Switch' leaves poly places empty

by Felicity Jones

Hundreds of polytechnic degree places in engineering have been unfilled due to the £43 million switch in resources providing extra student places for engineering in the universities.

Registrars and deans of faculty in engineering at the polytechnics are in little doubt that more students failed to enrol during admissions last week than in previous years when these students had accepted firm offers. The no-show rate among engineering students was running at about 15 per cent for degree places.

It is too early for the polytechnics to have processed their statistics fully but evidence pointed to those firm offers and even HND students as having been poached by the universities.

There were cases of students who had been offered HND places having been rejected for degrees in engineering at polytechnics and then being offered and accepting places in the universities.

Portsmouth Polytechnic had at least four students who had been offered firm places to study HNDs in mechanical engineering but later rejected them saying they had been given university offers.

Many polytechnics who have never had difficulty recruiting on to degree courses are scrambling around at the last minute to fill their places. Brighton, Hatfield, Portsmouth and Plymouth are all down on

their anticipated targets and most have concluded that it can only be the result of the increase in university places.

Mr Bert Hussey, registrar at Brighton Polytechnic said: "The pool of candidates was inevitably going to be limited and the boost to university places has spread the students unevenly. We believe that what affected us was the radio publicity indicating that the universities still had vacancies just before our enrolments took place."

Professor Terry Duggan of Portsmouth Polytechnic faculty of engineering said: "There appears to have been a worrying lowering of standards when the universities have accepted students whom we in turn have rejected as unsuitable for degree courses."

"I do not believe that it is just the 'switch' which is responsible. It is also the policy within our institution and the effect of National Advisory Body policy. The Portsmouth engineering faculty has had a traumatic time and lost 24 members of staff."

Mr Peter Brooke, chairman of the National Advisory Body and under secretary for higher education has argued that among the potential students squeezed out of the universities since 1981 who have not enrolled in polytechnics are many who might be attracted to switch places.

National Advisory Body officers doubted whether

many of these displaced candidates had appropriate A levels in mathematics and science. They always feared that the extra university places would hit polytechnic and college recruitment.

The NAB is to lower its targets for science and technology students next year to accommodate the changing recruitment patterns. Last year the target intake was 23,000 students but polytechnics and colleges have only been able to recruit 21,000 and next year's target is likely to be trimmed to 22,000.

Some suspect that even this reduced target may turn out to be too ambitious as the 'switch' places build up in the universities.

Mr John Bevan, NAB secretary said: "We would not be surprised at all if polytechnic students were lost to the universities. We warned that this would happen when the polytechnics failed to meet their targets last year."

The NAB had set this year's targets before it had any firm information about the shortfall in 1984.

It is still waiting to hear whether bids to take part in the second stage of the 'switch' will be accepted by the DES. Eight polytechnics have been chosen as front-runners - Central London, Kingston, Middlesex, Plymouth, South Bank, Coventry, Hatfield and Huddersfield.

In the first stage only university bids were considered.

Governors consider PNL reforms

by Adriana Caudrey

The Polytechnic of North London's court of governors met this week to consider urgent reforms in response to the recent independent report which roundly criticized the poly's style of management.

Among their main decisions they agreed to appoint two assistant directors to cover any gaps in the experience of skills of the new director and consolidate the effectiveness of the polytechnic's management.

The governors' own committee structure has been revised and a working party is to be set up urgently to study the report in greater detail before reporting back by the end of term.

Facing governors at the meeting on Wednesday was Miss Sheila Browne, principal of Newnham College, Cambridge, who chaired the investigation. It was her report which faulted the governors' organizational skills.

Miss Browne's report highlighted failures both in the polytechnic's internal and external relations. It described a divided establishment where departments operated in isolation, although the inquiry team set up by the National Education Authority, urged PNL not to dwell on its public reputation or on its past and praised it for its good academic standards.

The affair of Patrick Harrington, the National Front activist and PNL philosophy student, was also examined in the report, which concluded that the management should have acted sooner to defuse the situation, but added that it could have happened anywhere.

The governors were taken to the report extremely seriously, according to a PNL spokesman. One option they were considering at the meeting was to start up one-day seminars where members of the court could be trained how to govern.

The governors were also planning to set up much closer links between themselves and the staff and students. The report also pointed out that industry, commerce, and the professions, as well as students and non-teaching staff, were under-represented on the court.

Not only internal relations, but also PNL's relationship with outside bodies and organizations came in for criticism. The governors were very concerned at the criticism that the poly tried to shut out both HM Inspectorate and the Council for National Academic Awards, regarding them as unwelcome intruders.

Labour's Radice launches party's cry for HELP

by Peter Aspden

The Labour Party this week launched its campaign to win "the hearts and minds of the higher education community" - but warned that institutions must change to reflect the true social needs of the country.

The shadow education spokesman Mr Giles Radice promised at the party's annual conference in Bournemouth that a future Labour government would place a high priority on improving access to higher education, restoring adequate funding for institutions, and improving the pay and conditions of students and staff.

The launch of the Higher Education and the Labour Party (HELP) campaign is the first step in the party's effort to increase the number of activists in institutions, raise the profile of higher education within the party itself and build a network of specialists and experts to assist the party at constituency, regional and national levels.

But many speakers at the fringe meeting held to mark the launch want Mr Radice, and the campaign, to go further. They were particularly keen for the party to establish plans to introduce a comprehensive higher education system, getting rid of the present four-tier network which they condemned as anachronistic.

One idea said to be gaining support was the party's national executive committee education committee which would be made up of representatives of all universities which accept

Optimism after meeting with Joseph

by Peter Aspden

Vice chancellors are more than ready to pick up the challenges thrown down by the Education Secretary Sir Keith Joseph to persuade the Government to spend more money on universities.

They emerged from last week's residential conference at Leicester heartened by Sir Keith's more optimistic and responsive tone in his speech to them. He told the vice chancellors that it was up to them to hammer home their case for increased funding to the public and gain widespread support for their arguments.

That is bound to put even more pressure on the vice chancellors' public relations campaign which is due to get off the ground soon following months of detailed analysis of where they are presently going wrong.

Committee of Vice Chancellors and Principals secretary general Mr Brian Taylor said Sir Keith's tone at the meeting was markedly different from that of his address at a THES conference in London some months ago. "We are looking forward to meeting his challenge," he said.

The committee will publish its own Green Paper in the new year as a response to the Government document, the meeting decided.

In the meantime the vice chancellors' working group on performance continued on page 3



I recorded in a column a few months ago that, as a result of my conversations with a few retired spies (who had, incidentally, never quite made the grade but remained obscure throughout their careers), I had come to the conclusion that the only thing spies spled upon was other spies. The colourful Premier of Bavaria seemed to agree with me when he said, a few days ago, that 99 per cent of all the information collected by spies was totally worthless. Now that ring a bell in my mind and I have been thinking of the implications.

The fact that spies have been defecting on all sides around Europe suggests that they have become bored with exposing others and have got round to exposing themselves (well, in a sense, of course). The information they have been collecting is all in the papers anyway. I am advised that at their recent Annual General Meeting they voted by an overwhelming majority to brighten things up and keep the boring politicians wondering. That was the opinion of my best ex-spy friend, who now holds an important academic post. But he hinted that there was more significant information being sent with great skill across political boundaries. As I stared at him across the decanter it suddenly became clear to me.

What could be a better organization for sending difficult secret messages than the academic circuit of scholarship? Where else did top experts meet in secret conclaves in obscure (but sunny) foreign capitals? And what better vehicle for transmitting masses of sensitive detail than the PhD thesis?

I had always wondered about the significance of the PhD thesis in church history in the University of Edinburgh. Now I remembered that *The Times* had referred in its gossip column to obscure theses for which I thought there could be no possible justification other than deception. What else could be the reason for *The Life History of Midge in Temporary Peat Pools or The Leg Muscles of the Adult Honey Bee*? Was the word "midge" a euphemism for secret documents and were they all hidden in peat pools? What troops were known as "leg muscles"?

The great attraction of such a device was that the secrets must be safe. For no one, other than an external examiner (another euphemism?) could be expected to read the theses. Unless it was so bizarre that even M16 might take an interest. That might happen to *The Influence on their Decision-making of the Different Interpretations of Actors Involved in the Garbage Strike and Boycott of 1968 at Memphis, Tennessee*. (Was "garbage" another euphemism for secret documents?)

On the other hand it may all have been a mistake. Another old friend once told me that he was arrested at the border when he was taking a train load of boy scouts on an international jamboree in Moscow; he did not know that the Russian word for "scout" is the same as that for "spy" and he had accidentally claimed to have a train full of international spies, all expert in tracking and following spooks into forests and tying people in knots. He was an academic and should have known better. I understand that the last time a joker sent telegrams to members of the Athenaeum saying, "All is Discovered Fly at Once", it was vice chancellors, not bishops, who were not to be seen for months.

Patrick Nuttgens

Letters to the editor

The process of progress

Sir, - Messrs Burges and Piercy (*THES*, September 20) would have made a great public relations team for the medieval scriptorium! Their anti-word-processor generalizations are very misleading generally and many are actually wrong. They mask the need to develop clear guidance for anyone (academic or not) thinking of taking the plunge. From my experience anyone who wants to write, edit, and produce camera-ready copy on a word processor must:

● Choose the correct machine for the job - which can be expensive. On an easily-available machine (IBM Displaywriter), I have a "hard" keyboard; a screen which I can read easily for 12 hours a day (if necessary); 256k memory (upgradable), double disk drive and 8in double-density diskettes (and so not that slow); a push-button spelling check (into which I can load the vagaries of publishers' housestyle); automatic push-button pagination, format (ie spacing, pitch, etc) change and global search/replace (ie SSRC can easily become ESRC); "instant" text-moving, etc. etc. I learnt to use it "on the job" (despite useless manuals, relatively painlessly with no formal training. (Costly? And how! But well worth it for a professional writer. I have not yet seen a cheaper hard-copy software package which I would find acceptable. And if I wanted to produce camera-ready frequently I would want a laser printer too.)

● Plan and prepare projects carefully, develop appropriate working methods, and set up sensible routines. It is, above all, crucial not to think of a word processor as a "glorified typewriter". Editing/working routines can be usefully improved, and there are new "freedoms" for the editor which Burges and Piercy do not even mention. I am puzzled that anyone would want to do time-consuming things like changing format, layout, etc at a late stage when they would not even want to ask a printer to reset - as he always could, but at what cost! If academics want to be published and typesetter, then surely they must be as disciplined about schedules, working to specimen settings/layouts and costings as publishers and typesetters are - but this is no argument against using word processors.

Who does the actual keyboarding? Personally, I wouldn't give up direct input and screen editing, but the academic who has no idea how to type or use a keyboard would probably be better off finding an editorial assistant (not word processor operator) who can. Again, it depends on individual circumstances, but is no argument as such against word processors.

Coding for typesetting is a bore and I wish typesetters would come up with a standard, simple system. In the meantime, I use my own single-character codes while writing/editing, and (having a global search key) replace these

automatically with the setter's requirements when editing is complete.

Used properly, word processors can and do increase productivity - mine is up substantially, and I use far less paper (cost of printer ribbons alone encourages this) and no paste or Tipp-ex. Subbing on screen is faster, and infinitely cleaner, clearer (I speak as one who instantly smears any red line I draw) and error free. No, gentlemen, problems there may be, but I for one wouldn't go back to the dark ages now.

Yours faithfully
AUDREY SEGAL,
29 Heath Hurst Road,
London NW3.

Sir, - What makes Stevie Burges and Nigel Piercy ("Question of a hit or a myth") think that academics (a) do not draft straight on to the typewriter, never mind type their own articles, reviews, letters, etc and (b) can either have adequate access to sorely strained secretarial services or regularly afford professional typing? For those who do a lot of (a) and are limited as to (b), judicious investment in a word processor looks like missing very little indeed.

Yours faithfully,
ANNE MURCOTT,
University of Wales College of Medicine and University College Cardiff.

Standard of degrees

Sir, - Mr Georgiou suggests that an increase in the proportion of first and upper second class degrees awarded indicates that universities have lowered their standards (*THES* Letters, September 20). He attributes this to a desire to impress our financiers. On the contrary, a lowering of academic standards is most unlikely to impress the University Grants Committee favourably and this body is now monitoring the universities very closely. Readers will remember that the UGC accompanied the financial cut of 1981 with a corresponding reduction of student numbers precisely in order to maintain standards. This has enabled universities to be much more selective in their admissions. There has been a rise in the entry qualifications required for most university courses and this is a much more likely cause of any increase in the proportion of "good" degrees awarded. The correlation between entry qualifications and classes of degrees awarded does not have to be very high to produce this result.

Having made a dubious diagnosis of an imaginary disease, Mr Georgiou proposes an even more doubtful remedy in the form of a national validating body. The Council for National Academic Awards validates courses in polytechnics; it does not determine the degree results of students. These are decided by boards of internal examiners, assisted by external examiners, in exactly the same way as in universities.

Yours faithfully,
J. E. FLOOD,
Head of department of electrical and electronic engineering,
University of Aston.

Sir, - The Committee of Vice-Chancellors and Principals group on academic standards would be grateful if Mr Georgiou would send us his evidence for his statement that the increase in the number of first and second class honours degrees "morely reflects the extent to which universities are prepared (and capable) to undertake the quality of their awards in an attempt to ensure financial solvency for the forthcoming years".

If he has no evidence perhaps he would have the grace to disavow this assertion of gross professional malpractice on the part of the whole university profession.

Yours sincerely,
P. A. REYNOLDS,
Vice-chancellor,
University of Lancaster.

Courses guide

Sir, - Dr Milton and Mr Higgins (*THES* Letters, September 6 and 13) have commented on courses omitted from the Polytechnics Central Admissions System *Guide for Applicants*.

May I draw the attention of readers not aware of it, to the *Compendium of Advanced Courses in Colleges of Further and Higher Education*. The 1986/87 edition produced by this council on behalf of the regional advisory councils in England and Wales has recently been published. Comprehensive information is included on all full-time and sandwich post A level public sector higher education outside the universities on a national basis.

For each course intending students are guided on entry requirements and application procedures. So that candidates are fully aware of HND and other possibilities beyond HND, a new feature of the 1986/87 edition is that in the sections covering HND courses, colleges offering post-HND courses leading to the appropriate degree-equivalent professional examination are marked.

Yours faithfully,
D. T. M. BENNETT,
Director,
Regional Advisory Council for Further Education,
London and South Eastern Region.

Letters for publication should arrive by Tuesday morning. They should be as short as possible and written on one side of the paper. The editor reserves the right to cut or amend them if necessary.

NAB may press ahead on funding reform

The National Advisory Body is considering whether to push ahead quickly with a reform of the way it funds polytechnics and colleges which would reward institutions with a "higher education premium" in line with their proportion of advanced work.

The aim is to simplify the NAB's increasingly cumbersome funding methodology. Under the new scheme all institutions would receive basic funding according to a simplified formula; the long tail of colleges with small proportions of advanced work would have to be content with this allocation.

But polytechnics and other colleges heavily engaged in higher education would have their allocations topped up by the new premium; the larger their proportion of advanced work the higher their premium.

This new scheme is intended to solve two problems that have troubled NAB funding methodology from the start. The first is how to take

sensible account of the diseconomies of scale that prevail with similar work costing more in a large polytechnic than in a minor college with few advanced courses.

The second is to remove smaller institutions like art colleges that are almost exclusively engaged in higher education from the category of "minor institutions" most of which are ordinary further education colleges with only scattered advanced courses.

This "higher education premium" is designed to cover the extra costs incurred by polytechnics and similarly advanced institutions. Their lecturers are on higher salary grades; they need to make more expensive provision for their students; and they employ more support staff such as administrators, librarians, computer staff and technicians.

The new NAB scheme recognizes that the crucial factor which generates these extra costs is not the absolute size of an institution but a

degree of its commitment to higher education.

A third element in the scheme will be special payments to particular institutions, such as the new research fund. Later elaboration of the new methodology may mean that the NAB will take particular elements out of the formula allocation, such as rates which the University Grants Committee has always treated separately.

The present debate within the NAB is about the timing of the introduction of this new tripartite pattern of formula grant, "higher education premium", and special programmes. Mr Christopher Ball, the chairman of the NAB board, and the NAB's officers argue that the new methodology should be introduced next year. They point out that even though this would mean completing the work before Christmas, next year is likely to be quiet in other respects with only marginal adjustments to student targets.

Others like Dr Peter Knight, direc-

tor of the City of Birmingham Polytechnic, argue that more time should be taken to prepare the revised funding methodology so that teething difficulties are overcome before it is used. They also point out that there is a case for concentrating the disturbance likely to be created by this new system and also by the NAB's second big planning exercise into a single year, 1987/88.

Most members of the NAB, however, remain unconvinced. They will wait and see what the financial consequences of the new scheme are before deciding their views. Early exemplifications have shown that even with the "higher education premium" some polytechnics would lose funds.

The steering group to monitor the polytechnics and colleges' own efficiency study is now almost complete. Details of the study, which will mirror the recent Jarratt inquiry into university efficiency, will be announced later this month.

Appeal over exam disruption effects

The Scottish Universities' Council on Entrance is urgently appealing to head teachers and further education college principals to make clear how far pupils' examination results have been affected by the teachers' dispute, now in its second year.

The SUCE initially asked head teachers in March to contact university admissions officers, but says this has yielded mixed results.

It warns that pupils' performance in the 1985 exams is likely to be even more important for entry to university in 1986 since that intake will not include candidates given unconditional offers before the disruption started.

Pay chaos follows 5% offer

by Olga Wojtas
Scottish Correspondent

Scottish tertiary lecturers' pay is in chaos following a unilateral decision last week by management to award a 5 per cent increase.

The Scottish Joint Negotiating Committee's move was apparently precipitated by the new national insurance regulations which come into effect this weekend, and means the local authorities could be liable for an extra £800,000 on any back payments made after Sunday.

But the staff side rejected the 5 per cent award as derisory, and last Friday the Scottish Education Department rang colleges and local authorities to warn them that any payments would be illegal since no settlement had been reached.

No such advice was given at the SJNC meeting by the two SED assessors present, and it is rumoured that the SED investigated the legal position only after the enraged staff side claimed management had no power to impose new salary scales without agreement.

However, the department's advice came too late to prevent payment to a number of colleges.

The illegal payments may end up being considered an advance on lecturers' October salaries, but in that case the colleges' management will still be liable for the increased national insurance payments.

The management side is to meet on Tuesday, but there is likely to be a split between the local authorities, who run the further education colleges, and the board of governors of the central institutions and colleges of education.

PM christens neutron source

by Jon Turney
Science Correspondent

The largest single project ever mounted by the Science and Engineering Research Council - the £60 million Spallation Neutron Source at the Rutherford-Appleton Laboratory in Oxfordshire was launched this week with the Prime Minister's blessing.

Mrs Margaret Thatcher christened the new machine - to be known as ISIS - at a ceremony attended by other ministers from Britain and overseas, and said she thought it was worth every penny.

She assured Professors John Kingman and Bill Mitchell, old and new chairman of the SERC, she fully recognized the importance of basic research as "a springboard to the creation of wealth" as well as to other less tangible but no less worthwhile outcomes.

But ISIS, planned in the mid 1970s, starts operation in lean times. The main significance of Tuesday's inauguration was a strong sales pitch to European science ministers and their representatives, whose support will be needed to pay the £10 million a year running costs.

Mrs Thatcher said Britain would push ahead as fast as possible to make ISIS a truly international facility. There is strong interest from France and Italy in using neutron beams extracted from ISIS as probes for "condensed matter" research, for which Europe now has an unrivalled range of facilities.

But it is still not clear whether there will be agreement on a complex package deal for cross-access to facilities, including ISIS, the SERC's Synchrotron Radiation Source in Cheshire, the Institut Laue-Langevin with its neutron-reactor at Grenoble and the proposed European Synchrotron Radiation Source. The alternative may be a series



Dr Geoff Manning (right) showing the Prime Minister components from the particle accelerator which is one stage in the production of neutron beams from ISIS, before she named the new machine this week.

of separate bilateral agreements. Discussion behind the scenes at Rutherford on Tuesday encouraged the belief there would be some firm agreements by Christmas.

Dr Geoff Manning, the laboratory director, emphasized the extent of support already received from overseas, largely through agreements to supply detectors for different kinds of experiments on one of the SNS beam lines. Detectors, which cost around £750,000 on average, have so far been supplied by India, Germany and Italy, and further agreements are likely with German and Japanese researchers.

Optimism after meeting with Joseph

continued from front page

indicators chaired by Professor Mark Richmond, vice-chancellor of Manchester University, is due to meet for the first time later this month. Representatives from the CVCP will also soon be meeting Lord Croom, chairman of the committee set up by the Government to look at the role of the University Grants Committee.

Mr Norman Hardyman, University Grants Committee secretary, said the UGC which met last weekend, had been "pleasantly surprised" by Sir Keith's speech.

"I think what came over to the members was that Sir Keith was showing himself as willing to be helpful to the universities. It was quite a marked change of tone from the Green Paper which gave the impression that the government was somewhat hostile to the universities," he said.

Sir Keith's message, page 5

Changes in patent system 'would benefit biotechnology'

Patenting life should be made easier to ensure the speedy development of biotechnology, says the Organization for Economic Cooperation and Development in a new report.

The report was based on a survey of OECD member countries, carried out for the organization's Committee for Scientific and Technological Policy. It argues strongly for adaptation of the patent system to secure commercial protection for modified organisms and newly characterized naturally-occurring organisms.

The OECD authors say academics who want to use the patent system are strongly in favour of a "grace period" of six months or a year permitting patent application after publication of a scientific paper. There are also moves to gather support for this in the Geneva-based World Intellectual Property Organization.

The report also says micro-organisms should be generally accepted as patentable, even when they occur naturally. A few countries including Britain, now accept claims to natural micro-organisms. The OECD says

others should follow suit, "in view of the considerable research and development efforts which go into the isolation, purification and testing of naturally occurring micro-organisms before their usefulness can be established."

Other recommendations include accepting deposition of cultures as a form of disclosure, better protection for new plant varieties, faster approval of patent applications, and wider acceptance of patent advisers or bureaus in universities.

The report says a positive attitude towards patenting among academics is essential to the functioning of the system, and finds that the approach of individual scientists "is improving."

The OECD stresses that biotechnology is a leading example of a high-technology area making new demands on the patent system, notably by blurring clear distinction between a patentable "discovery" and a non-patentable "invention".

Biotechnology and Patent Protection: An International Review, OECD, Paris, September 1985.

Design & Technology Education and Training

22-24 October 85
Wembley
Conference Centre

- ★ FREE Admission ★
- ★ Ample Car Parking Adjacent ★
- ★ Films/Seminars ★
- ★ The Largest Show of its type in the World ★
- ★ Official opening by Sir Keith Joseph, M.P., Secretary of State for Education & Science ★

Manufacturers, Colleges and Educational Bodies make this an annual meeting and discussion place for all those involved in the teaching of C.D.T.

2 day conference organised by 'DesTech' Association on Tuesday & Wednesday.

No school parties will be admitted (sixth form pupils by prior arrangement only).

Full details including subsidised travel arrangements from:

ICHF Ltd, Dominio House, Seaton Road, Hightcliffe, Dorset.
Tel. 04252-72511/72711.

DON'S DIARY

SUNDAY

Lae-Goroka. I and two architecture lecturers are taking 19 first-year architecture students on a field trip to study two villages in the Highlands of Papua New Guinea. This is the highlight of an interdisciplinary exercise in the teaching of communication to architecture students between the architecture and language departments in which architecture studio time is used to teach the students the necessary graphic skills, while I use the language classes to teach communication skills. The students will write a study of the villages to be marked by lecturers in both departments. Most of the students come from coastal areas of the country, so they are somewhat apprehensive about going to the highlands. The cold is one of their fears - the temperature could go as low as 10 degrees centigrade. But they are more afraid of tribal fights in which they fear getting innocently involved because they are not highlanders. Our destination is Enga Province.

MONDAY

Eastern Highlands. A day of contrasts. First a visit to Goroka Town Council, where the manager gives an excellent talk on the workings of the council followed by a tour of the town. The airport is in the middle of the town, serving the same function as the railway station in 19th century Australia or USA. After lunch, we go to the village of Panuko, 10km from Goroka. Its circular layout is an indication of the importance of the circle in many PNG cultures. The houses, too, are circular in plan with walls made of timber planks and roofs thatched with *kunal* (sword-grass). They are very low, not more than six feet high. A large gap at one end of the village enables evil spirits to escape.

The students soon lose their apprehension and start gathering information on the village, talking to the villagers, measuring the houses, taking photos, drawing. The villagers speak one of the 700-odd languages of PNG, but there is no language problem as everybody speaks pidgin (Tok Pisin).

All the females are working in the gardens, tending to the sweet potatoes, sugar cane and taro. Meanwhile the men are sitting in the village, playing cards.

TUESDAY

Goroka - Wabag. We leave for Wabag uncertain whether we are going to make it there today or not. We have no recent information on the state of the road between Mount Hagen and Wabag. Rain and landslides can make it impassable, even for four-wheel drive vehicles and ours are only two-wheel drive.

As we progress along the highlands highway, we know when we have crossed from one province to the next by the houses. Oval-shaped houses tell us that we have reached Chimbu. Then, circular houses again announce western highlands. Eight and a half hours and 260km after leaving Goroka, we reach Wabag just before dark. We quickly learn about the state of education in this province when we reach the High School where the students are to stay. They are to sleep in the science room because the dormitories are full.

WEDNESDAY

Wabag. One of the reasons for coming to Enga is the Enga Cultural Centre in Wabag, run by its enterprising director, Aki Tumu. We have read about the centre in a newspaper article and now we find it below the town, surrounded on three sides by a mountain stream which we have to cross twice on wooden bridges before we reach it. It consists

of a museum, an art centre where local artists produce sand paintings, and an Enga house of traditional horseshoe shape, examples of the old and the new, for the sand paintings are a new art form, the inspiration of Aki Tumu. He wants to encourage local artists without using expensive imported materials, so they use local sandstone broken up and sieved to powder to produce pictures that retell the local legends in vibrant local colours.

While the students are studying the traditional house, I recall that less than 40 years ago, this area was first entered by Europeans, the last major population centre to be discovered in the world. The people of Enga are very proud of their traditions and are determined to keep them alive.

Aki Tumu has a surprise for us. There is a singing (traditional singing and dancing) in a village not far away. Do we want to go and see it? We approach the singing through knots of people, some wearing traditional dress of aprons in front and as *gras* behind, a spray of different coloured leaves, like a cockerel's tail. Their faces are painted different colours - some black and white, some yellow. The students complain soon after arrival. They say the dancing is boring, because the dancers merely jump up and down to the sound of referees' whistles. But when I climb a low hill to get some photographs from a different angle, I meet the old men of the tribe watching the dancers. They tell me that they can foretell a person's future by the way he or she dances. In any case, they are doing it to raise money for a ward for their health post.

THURSDAY

Lenki. On our way to the village of Lenki, we ask an old man the way, but he speaks no Tok Pisin, only Enga. The next person we ask, a young man a few yards away, surprises us. He answers our Tok Pisin in English, an instant lesson on the generation gap in PNG, and for me evidence of the wide range of societies available to the younger generation of this country. The culture gap, too, is very evident. Here men and women live in separate houses. The men can go into the women's houses, but not vice versa. The women's houses are bigger than the men's because the pigs are kept in them. Both kinds of houses are superbly designed for the cool climate. Hull down, sheltered from the wind, their walls have a double layer of planks with a gap between for insulation. There is a fire just inside the entrance which blackens the timbers, so preserving them and at the same time keeping the insects away. Here and there are "modern" houses with tin roofs and woven bamboo walls, so the people inside them need imported blankets as well as a fire to keep warm. Neat gardens of sweet potatoes, sugar cane and taro separate the houses, while coffee bushes grow down the hillside.

Suddenly, while studying one of the traditional houses, a man wearing *as gras* strides purposefully towards us, firmly grasping the axe in his belt. The students look fearfully at me. He is merely eager to tell us about his culture. It turns out that he also hopes to go to our university to study chemical technology.

Not all of the students have been so apprehensive. Hani has collected some wood, *kunal* and vines so that he can build a model of an Enga house back in Lae using genuine materials. Tony has been shown an area where a tribal fight recently took place - houses, gardens, coffee bushes, people, all destroyed.

FRIDAY

Wabag - Goroka. I am up at 6am to enjoy the early morning calm. The valley is shrouded in mist, but the hills are free, green and lush. The land and the smell of woodsmoke remind me of my last post in Nepal, except that the hills are forested and I will be driving out, not walking. My foot itch to do the latter.

In Mount Hagen, I see the first newspaper for four days. A headmaster and his wife have been axed to death in Enga, while we were there.

Colin Barron

The author is senior lecturer in the department of language and social science at Papua New Guinea University of Technology.

'Bolster jobs not feather beds'

by Jon Turney
Science Correspondent

Academic tenure could be granted at a basic starting salary says a new report from the Council for Science and Society, a charity which aims to promote discussion of scientific affairs.

The CSS report was produced by a working party chaired by Stephen Bragg, former vice chancellor of Brunel University, but with a majority of non-academic members.

The group offer their salary scheme as an example of the kind of thinking needed to advance a highly polarized debate. The report says the positions of both "abolitionists" and "retentionists" have merits, but each side ignores the points in favour of the other's position.

The group accept that academics need security to pursue long-term projects. "Science cannot progress if all researchers are required to investi-

gate only topics which seem likely to be immediately rewarding," they say.

But while tenure affords protection and safeguards academic freedom, the report also concedes it reduces mobility and makes higher education institutions less flexible.

The group has devised a scheme which could protect tenure while increasing flexibility. It would mean a staff member passing the usual probation would be granted tenure, but would only be guaranteed a basic salary.

The report argues this would offer protection against unfair dismissal without feather bedding. Universities would be left with money now spent on higher salary levels to offer incentives for teaching particular subjects, moving between departments, or doing other new work.

Alternatively, salary increments could be offered in the form of free time, with lecturers able to increase

their incomes from outside work. They would receive a higher daily rate from the university but no extra cash over the year.

The group argue that such arrangements could bring almost immediate change. They believe there is little danger of able academics drifting away under such a scheme. "Individuals who prefer the distinctive academic milieu are more likely to be attracted by the terms of employment we have outlined than by those laid down by an institution of higher education which is indistinguishable from an industrial corporation," the report says.

The group stress there will be objections to their scheme, but they say it shows there is more room for manoeuvre in the tenure debate than generally believed.

Academic Tenure - Luxury or Necessity? from Council for Science and Society, 314 St Andrews Hill, London EC4, £2.50.

Tip for the top from Down Under

by Felicity Jones

Warwick University has just set up the first new extramural faculty in a university for a long time and got Department of Education and Science funding to boot.

Professor Chris Duke is the man who has been brought back from a 16-year stint as the director of the centre for continuing education at the Australian National University to head the new department.

Admired by most colleagues for the breadth of his experience in the field and internationally, he is widely tipped as a future key figure in adult education and possible chairman of the National Institute of Adult Continuing Education, should Professor Fordham decide to retire.

A graduate in history from Cambridge, he found the only subject they wanted him to teach when he left was sociology. He joined the department of adult education at Leeds University and ran a three-year class in sociology for West Indian and Asian students in the city's Chapeltown district on subjects like housing and social action.

He went from Leeds, "the bastion of long tutorial classes," as he describes it, to start the centre in Australia which he freely admits had its hard times.

"It was another challenge to come back to this country and create a new department which would be fitting to



Personal File

the times in which we now live," he said.

Given Warwick's existing high profile in its links with industry and outside institutions as the home of the first PICKUP consortium, it is scarcely surprising that under his leadership the new department will continue this tradition.

One thing is for certain, it will not be in the mould of the traditional ex-

tramural faculty. Professor Duke has been given a wide remit to continue with liberal adult education, much of which it took over from Birmingham University's programme, and to pave the way for non-traditional entry into higher education with a stepping stone into accredited study.

Four academic appointments are to be made under responsible body funding. The new staff will be there as much to develop links with internal departments as with other organizations.

"It is not economically feasible now to spend our money on subject tutors out in the regions and I'm not sure it is an appropriate model anyway. In Australia all the academic appointments were scholars in continuing education and not particular subjects," he said.

He plans to develop graduate teaching in continuing education as academic field and with the emphasis on flexibility to continue with the development of professional education.

Professor Duke's keen interest in development education should also lead over into the department's work. He is deputy secretary general of the International Council for Adult Education and former head of the Asian South Pacific Bureau and a book edited by him on national strategies for combating poverty through adult education has received favourable reviews.

New v-c and new degree highlight community links

Universities are not fulfilling their proper role if they fail to make use of their links with the outside community said Dr Clark Brundin, who took up his appointment as vice chancellor of the University of Warwick this week.

Such relations with the outside world should be a cornerstone to the future thinking of the universities in the next decade. "There is not much validity for academics sitting in their ivory tower, doing their own particular thing either in the sciences, where this philosophy is seen as essential, or in the arts and social sciences," he said.

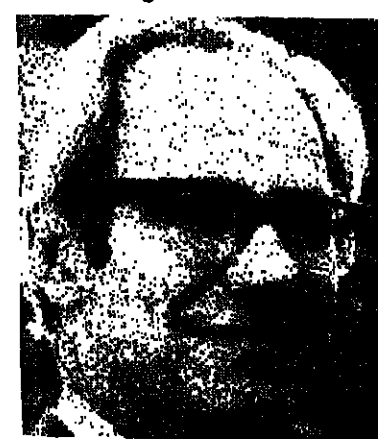
His first official engagement, the launch of the School of Industrial and Business Studies external degree of Master of Business Administration at the Institution of Civil Engineers, could be seen to set the pace.

Dr Brundin, as successor to Lord Butterworth, gained experience for the position as vice chairman of the general board of the faculties at Oxford University which carried with it the duties of a senior academic administrator "without the pleasure of meeting people which I enjoy".

His first public appearance marked a collaboration between the university and Wolsey Hall, the Oxford correspondence college and aims to bring a high level MBA within the grasp of the 85 per cent of managers in industry who have no formal degrees.

Professor George Bain, head of the business school, said business schools produced only 1,000 graduates a year but merely to keep pace with the loss of qualified managers through retirement of 12,000 graduates were needed annually.

The fact that so few managers are qualified is one reason for explaining the relatively poor performance of indus-



Dr Brundin: first engagement

try and the country," said Professor Bain.

The degree will be available in modules to be taken in a minimum of three years by distance learning methods and a maximum of eight years.

Students will be assigned a personal teacher and will maintain telephone contact and mark assignments. Each year one compulsory and one optional residential period will be held at the university and a counselling service will be run from Wolsey Hall.

Each of the three years levels can be taken separately as a certificate, diploma or masters award and a fourth year will involve in-house project work.

The school hopes to enrol 200 in the course which will begin in January at a cost of £2,500 for the four years to each student. It was estimated by a colleague that developmental costs to the university had been between £20,000 to £30,000.

Go-ahead for environment planning

Universities and polytechnics were urged last week to offer courses in environmental impact assessment (EIA), a process which will become part of planning law in 1987.

A recent EEC directive obliges member countries to see that an EIA is carried out before permission is granted for public and private projects likely to affect the environment and prevent pollution or nuisance at source.

The need for training was stressed at a Manchester University conference organized by Dr Norman Leo and Dr Chris Wood, two senior lecturers who did the background studies for the EEC directive and who prepared a study of training requirements.

Dr Leo, an economist, said that the present quality of EIA training was very uneven and objectives were not always clear. "The trainers themselves lack practical experience - an inevitable problem in any new development," he added.

Dr Wood, of the university's town and country planning department, said that in 1975 he attended a conference at the University of Kent where many were predicting that EIA would never happen in Britain. That had happened, and training programmes were urgent.

In particular, there should be short general awareness courses for councillors and senior business people, he said.

University and polytechnic courses could educate young and flexible minds with the benefits of an environmental impact assessment of an early

FTHES

Lord Adrain and the waterworks

Lord Adrain, the incumbent vice chancellor of Cambridge University, looked forward to the bureaucratic challenges and demands of his mighty office, on the eve of his investiture. "It will be a slow, slow process," he pondered. "That was what I learned when I served on the House of Lords select committee on science and technology, investigating drains, sewers and waterworks."

Was there any connection between Lord Adrain's professed indifference to the aesthetic charms of Cambridge colleges and the fact that he proposes to run them by mind lessons he has learnt from a study of underground drainage systems?

A few feet away from Lord Adrain at the same luncheon table - at the university's academic administrators were agonizing over how to answer a questionnaire, asking how many undergraduates have a wash-basin in their rooms. Who better to answer the question than the waterworks expert in their midst?

New barbarism in the Windy City

The Illinois Institute of Technology has long been renowned for its austere modern architecture of its Chicago campus, most of it designed by Ludwig Mies Van Der Rohe. But faculty and students alike have decided that modernity can go too far.

When a new steel canopy, costing \$330,000, was hung over the entrance to the Institute's renovated library, there were screams of protest. The canopy had red, yellow and blue beams, and was supported in part by red steel cables. An insult, said many, to the memory of Mies.

So the canopy has come down, and the Institute has a problem: something else will have to be designed to protect the brand new library carpets. They will have to be quick: the snow comes early in Chicago.

Those upply Conservative students stick out like a sore thumb in the annual report of the parent party conference. A plaintive paragraph at the foot of the PCS section concedes that their annual conference was "marked by the behaviour of a few irresponsible individuals" but puts the episode firmly in the past and anticipates an excellent year ahead winning the battle for ideas and members for PCS.

Good neighbours fall out . . .

The uneasy truce between the two tenants of Hamilton House over the deal to college lecturers offered and accepted while schoolteachers were taking industrial action boiled over this week.

An unprecedentedly hostile speech to the salaries council which eventually ratified the college lecturers' deal by NUT representative Ms Deane Holloway attributing all the sinister motives under the sun to her erstwhile Nafhe colleagues has done little to cement relations between the two unions.

Warwick University has always had a special relationship with Jaguar cars. The company was involved in the founding of the institution and on Monday, according to tradition the new vice chancellor Dr Clive Brundin took receipt of his brand new limousine.

However he did not acquire a Sinclair CS - the modest shoppers' runabout - researched on Warwick's science park. A fleet of those are freely available for getting around the campus for security staff.

Panic over Liverpool grants

by Adriana Caudrey

Panic has struck students and their representatives amid reports that the crisis-ridden Liverpool city council has not been paying out grant cheques.

Conflicting statements have been circulating about whether or not students from Liverpool will be receiving mandatory grants as normal. The National Union of Students, nationally and locally, say they have heard of students whose college places are jeopardized because they have not received their money.

According to the NUS these cases have cropped up at the North East London, Central London, and City of London polytechnics. Mr Phil Cooper, NUS convenor for the London region, said: "We have heard that some students have been denied their grants and may not be given places on courses at their colleges as a result."

The message to students from the NUS nationally is: "Hang on". They say that if the council does not send the money, the Government must provide it, because central government is ultimately responsible for supplying 90 per cent of the mandatory grant.

A spokesman for Liverpool council said that all mandatory grants were

being paid. "So far as we're concerned mandatory grants are mandatory and so we have to pay them," he said he would investigate whether there had been a delay in sending off the cheques.

He added: "I would have thought students would have been screaming like hell at the authority if they hadn't received their grants, but we have heard nothing about it." He speculated that the confusing and constantly changing financial situation in Liverpool may have led to delays.

Meanwhile academic administrators and student union leaders at the three London polytechnics have also denied that large numbers of their students who come from Liverpool have had grant problems. Registrars at the institutions say that students would not be sent away if their grants did not arrive on time.

A spokesman for North East London Polytechnic said: "I have had no feedback from sources in the poly that students from Liverpool are at a disadvantage." To date, seven cheques for students from Liverpool had been received - that is about half and normal for this stage in the term.

NELP student union president, Ms Sarah Adams, said she had spoken to only one Liverpoolian student who was alarmed because he had not received his grant. She assumed that fears as to whether or not the council's financial plight would affect students had fuelled scare stories and predictions of problems.

Meanwhile the students' union at Liverpool Polytechnic is pressing NUS headquarters for cash because their block grant from the council is being cut by half as a result of the crisis. They expect to receive £50,000, instead of the usual £95,000. They say they need the money to continue campaigning and for students' welfare.

Members of the National Association of Teachers in Further and Higher Education at the polytechnic have been instructed to "return to sender" the redundancy notices being issued by the council. The rector, Mr John McKenzie and other senior staff were the first to receive theirs. Urgent talks are still going on to try to safeguard the poly from even temporary closure as this could jeopardize its continued validations by the Council for National Academic Awards.

Catering is privatized

Paisley College of Technology has this week issued redundancy notices to its 23 catering staff as it prepares to privatize the service.

The Scottish National Union of Students fears this move by Scotland's third largest central institution will lead to privatization in other colleges as the Scottish Education Department puts increasing pressure on them to break even.

Three companies are being considered for the Paisley tender, with the board of governors expected to make a final decision next week. The redundancy notices take effect in December and a private company is likely to take over in January.

Paisley's secretary, Mr John Oswald, said a condition of the tender was a guarantee of a job interview for all the former Paisley staff, with salaries and conditions of service as close as possible to those they had had.

Paisley has been losing around £20,000 annually on catering, he added, and privatization would relieve the pressure on the general budget.

However, Mr Alan Smart, Scottish president of NUS, retorted: "Education at a college isn't purely what you are taught. It is the responsibility of an educational institution to provide a decent service as regards catering, halls of residence and libraries."

If you go into a lecture starving because you can't afford to eat, the most brilliant lecture in the world will go right over your head."



The man who has paved the way for more than 7,000 Heriot-Watt graduates over the past 11 years was himself the star of the show at his retirement presentation this week. Mr William Reid (alias Bedell Bill) - the bedell is the university's mace bearer for all ceremonial occasions - has been with Heriot-Watt's janitorial staff for 27 years.

Honorary graduates whose heads he has looped a hood include King Olav of Norway, Mrs Shirley Williams, Sean Connery, Cardinal Gordon Gray and Sir Clive Sinclair.



VENTURE FINANCE FOR HI-TECH COMPANIES

START-UP SITUATIONS A SPECIALITY

Birmingham Technology Ltd (BTL) invests venture capital in high technology companies. Investments range from £20,000 with no upper limit. For investments over £250,000 BTL seek syndication with other venture capital and/or commercial partners. Investments include equity together with loans flexibly geared to the needs and repayment capabilities of the client.

Investee companies are expected to locate on Aston Science Park where BTL offer the services of an in-house management team able to draw upon wide industrial and financial experience to provide help in key areas of management which a rapidly growing company may not yet possess. The addition of extremely flexible leases and accommodation, and the full technological support of Aston University make for a unique concept.

Contact:

Barbara Richards

Birmingham Technology Ltd, Dove Lane, Aston Triangle, Birmingham B7 4B

Telex: 334535



Keeping up the support

As another academic year starts thousands of new students will be entering further and higher education. However, their prospects for receiving any financial support from the state are slim. The National Union of Students, representing over 1.4 million students in all sectors of education, has recently written to Sir Keith Joseph concerning the review of student awards for 1986/87.

Since 1979/80, when the present Government took office, the value of the mandatory award has consistently fallen in real terms. NUS is requesting that the DES increase the main rate of grant for 1986/87, so that, for example, the main rate of grant for students living away from their parental home and outside London would be £2,110.

Leading on from this, the beginning of last September saw the first year when students were unable to be reimbursed for travel costs. This decision, by the DES, was taken without sufficient justification in light of the available statistics indicating the adverse effects which the decision would and has had upon students.

Two years ago, NUS published a survey of undergraduate income and expenditure, which showed that 47 per cent of students living in the parental home and 32 per cent of those living away from home spent more than the amount allocated in the grant for travel. Mr Peter Brooke, under-secretary of state with responsibility for higher education, has stated that the flat rate system introduced in September 1984 would involve an element of "rough justice".

NUS do not regard such a large proportion of students facing hardship as "rough justice" but rather an extension of the present Government's policy on education, that of making education only accessible to those who can afford it. We firmly believe that a system of reimbursement in full of travel costs over and above a fixed element within the grant, bearing in mind if the student lives in the parental home or away from home and in the latter case, whether in London or elsewhere. The undergraduate income and expenditure survey indicates that if the levels of travel which NUS are proposing were adopted, over 50 per cent of students would not need to seek reimbursement.

The present Government claims to be in favour of equal access to further education but they have not yet shown any positive commitment. NUS is concerned that over 323,000 of our members in non-advanced and advanced further education, receive no financial support, which in turn deters many more people from entering further education. The choices at 16 and onwards should be made in the light of personal financial capability, thus NUS are in favour of a minimum educational allowance for all students aged 16 and over. We propose that the appropriate level of support should be £35 per week for term time and short vacations. This would be similar to the projected weekly amount to be paid to trainees in the second year of the Youth Training Scheme.

In the absence of any adequate review of student financial support, as has been promised by the present Government, NUS believes the only course, available in regard to the Government's proposals for social security provision in relation to students is that the status quo should be retained.

Jim Cawley

The author is an executive committee member of the National Union of Students.

Market-related pay 'on the way'

by Peter Scott

Common pay scales for university teachers will not last much longer, Sir Peter Swinnerton-Dyer, the chairman of the University Grants Committee, told a conference on the future of business schools in London on Monday.

"The pack ice is beginning to break up. Universities will not be troubled for much longer by the constraint of having to pay the professor of divinity the same as the professor of business management."

Sir Peter was answering complaints that business schools were prevented from paying market-related salaries because they were tied by negotiated salary scales. The conference had been organized to consider a plan to privatize business schools put forward by Professors Brian Griffiths and Hugh Murray of the City University Business School in an Institute of Economic Affairs pamphlet *Whose Business?*

published in June.

Sir Peter expressed more sympathy for privatization than many heads of business schools who were present had expected. He said that the burden of proof lay with those who wanted to subsidize postgraduate business education and that business schools, unlike medical schools, did not benefit from their incorporation in universities.

However, he warned that privatizing postgraduate management courses might damage the quality of undergraduate courses, and doubted whether hiving off business schools would work well outside London.

Professor Peter Moore, principal of the London Business School, attacked the IEA plan. It failed to recognize that the customer for Master of Business Administration courses was the student. If business schools were privatized the likely effects would be to suck in more overseas students and to

distort the balance of subjects, away from industrial management and towards lucrative fields like banking and accountancy.

"It would be paradoxical if at the very time when universities are being urged to move closer to industry business education, which is probably the most closely oriented to industry and business activity in universities, were to be removed," he added.

Sir David Hancock, permanent secretary at the Department of Education and Science, told the conference that the DES was taking the privatization proposal very seriously and that Sir Keith Joseph, the Secretary of State for Education and Science, was personally very interested. He has written to the heads of more than 100 companies seeking their views, as well as to business school principals.

But he was worried that the debate about the future of business schools should be based entirely on the proposals made by Professors Griffiths and Murray.

Sir David added that ministers would have to take two key decisions, whether there was a case for continued public subsidy of business education and where the dividing line should be drawn between privatized and public parts of the system. His own view was that better business education was in the public interest, so some subsidy was justified.

One possible course of action would be to seek volunteers from among the business schools to be taken off the UGC grant list and to become direct grant institutions under the DES or possibly the Department of Trade and Industry. Then conditions such as the abolition of tenure, regular staff appraisal, evidence of industrial backing, and so on could be attached to the award of grant.

leader, back page

Extramural formula spells gloom

by Felicity Jones

Early indications of the new formula for funding extramural departments in universities are that there will be a sharp redistribution of grant between departments. The grants have now been announced, based on applying the formula to 10 per cent of the available grant.

It is already clear from soundings taken by the University Council for Adult and Continuing Education that some departments will suffer badly and up to three may be forced to close.

The extramural departments have provided the council with a breakdown of the estimated effect in the coming year and some, like Cambridge University's department of extramural studies, are considering lobbying Members of Parliament.

Professor Bill Forster, UCACE secretary, said that the formula would result in cash being switched to those areas where there is already a well-established demand for traditional extramural work.

"The losers will not necessarily be penalized because of their own shortcomings. Particularly at risk are those departments with difficult areas of work in the rural and deprived inner city areas."

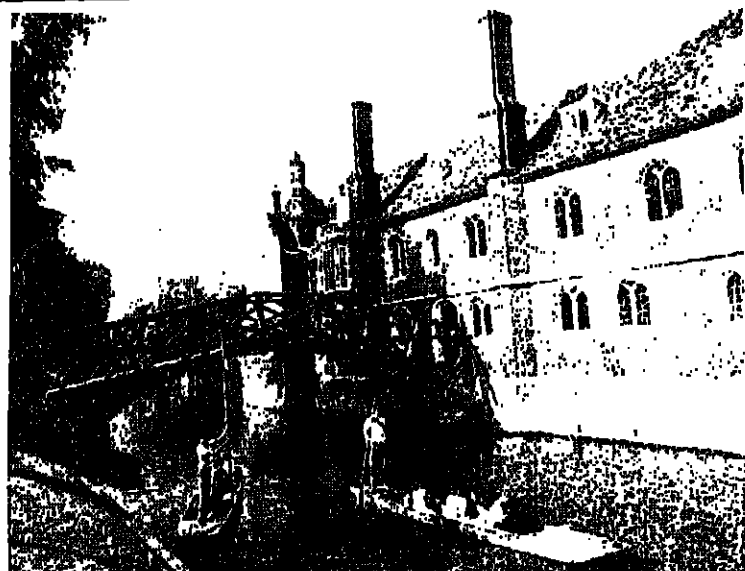
Just as worrying is the motivation within the formula to earn grant by moving away from work where student numbers are low," he said.

Professor Forster said the formula could leave some parts of the country with no extramural funding and others with good-sized groups studying popular subjects.

"This would not be the wish of the extramural departments nor is it the sort of pattern which they have developed so far," he added.

Over and above the new formula, the 14.3 per cent grant cut is damaging collaborative arrangements with the local education authorities and the Workers' Educational Association. Taken in the context of the departments having already shouldered their share of the UGC cut and the reduction of education authority spending over the years, departments have to increase their income sources very quickly.

"This will not only have a domino effect on other bodies but is replacing effective collaboration with downright and often wasteful rivalry," said Professor Forster.



The mathematical bridge at Queens'

at the camera in the first film is the college president Professor Ron Oxburgh.

This is more remarkable as that first film shows five sixth-formers going through interviews, following them up to the fateful letter of acceptance or rejection. After this opportunity to play Oxbridge admissions tutor, the series moves into college life at the start of the academic year.

The full cast of Cambridge characters will give grounds for reinforcing every possible preconception about the place. Waldman's number two Imogen Sutton lived in Queens' the whole year - have generated a genuine fly-on-the-wall view. The only person who so much as glances

at the camera in the first film is the college president Professor Ron Oxburgh.

at the camera in the first film is the college president Professor Ron Oxburgh. This is more remarkable as that first film shows five sixth-formers going through interviews, following them up to the fateful letter of acceptance or rejection. After this opportunity to play Oxbridge admissions tutor, the series moves into college life at the start of the academic year.

The full cast of Cambridge characters will give grounds for reinforcing every possible preconception about the place. Waldman's number two Imogen Sutton lived in Queens' the whole year - have generated a genuine fly-on-the-wall view. The only person who so much as glances

at the camera in the first film is the college president Professor Ron Oxburgh. This is more remarkable as that first film shows five sixth-formers going through interviews, following them up to the fateful letter of acceptance or rejection. After this opportunity to play Oxbridge admissions tutor, the series moves into college life at the start of the academic year.

The full cast of Cambridge characters will give grounds for reinforcing every possible preconception about the place. Waldman's number two Imogen Sutton lived in Queens' the whole year - have generated a genuine fly-on-the-wall view. The only person who so much as glances

at the camera in the first film is the college president Professor Ron Oxburgh. This is more remarkable as that first film shows five sixth-formers going through interviews, following them up to the fateful letter of acceptance or rejection. After this opportunity to play Oxbridge admissions tutor, the series moves into college life at the start of the academic year.

The full cast of Cambridge characters will give grounds for reinforcing every possible preconception about the place. Waldman's number two Imogen Sutton lived in Queens' the whole year - have generated a genuine fly-on-the-wall view. The only person who so much as glances

Cambridge captured by TV cameras

Over two years ago the fellows of Queens' College, Cambridge, voted by a slim majority to admit BBC camera crews within the college walls. Later this month they will be able to see if they made the right decision. For after 600 years, Queens' is set to become the best-known higher education institution in Britain.

Queens' - A Cambridge College is a 10-week documentary series near the top of BBC2's list of autumn promotions, and looks likely to give viewers a richly detailed picture of a year in the life of what the BBC sees as a "typical Oxbridge college".

For producer Michael Waldman, an Oxford man, it is an examination of a privileged British institution. For Dr John Green, Queens' senior tutor, a chance to show that the college is not a closed, elite institution. For the students, an added gloss on the glamour of being in Cambridge, and a chance to chat up the crew to pick up hints on how to get a job in television.

Around 100 hours of filming distilled into 10 40-minute programmes gives a pretty well-rounded idea of college life. And the producers' efforts - Waldman's number two Imogen Sutton lived in Queens' the whole year - have generated a genuine fly-on-the-wall view. The only person who so much as glances



Graduation day: reinforcing preconceptions

University fined in wake of monkey research row

by Olga Wojtas
Science Correspondent

Pennsylvania University has suspended its controversial research project with Glasgow University on brain damage in monkeys, and has reprimanded the researchers in charge of the experiments.

The United States Department of Agriculture has fined Pennsylvania \$4,000 for violating the Animal Welfare Act by its poor standards of cleanliness, ventilation and veterinary care, and by inadequate anaesthetizing

of the animals who are subject to brain damage.

A university spokesman said the first three areas were being corrected, but the university did not accept the findings on anaesthesia. The anaesthetic used allowed the animals to move, although they were incapable of feeling pain, he said.

The research was temporarily halted in July, by the US secretary of health and human services, Ms Margaret Heckler, after the National Institutes of Health found the animals had been ill treated.

But Pennsylvania has now axed the

research before publication of a final NIH report, although it says it accepts there was no cruel or inhumane treatment of the animals. The case has shaken public confidence in the University as a whole, says a university statement.

Glasgow University, whose department of neuropathology received the frozen brains of monkeys, says its own successful conclusion, with important results on the causes of coma and brain damage after head injury. The depart-

ment head, Professor James Hume Adams, said collaborative research is likely to continue with Pennsylvania using guinea pigs and squid.

The campaign to end the research has been spearheaded over the last two years by the US animal rights group People for the Ethical Treatment of Animals and the Scottish Anti-Vivisection Society, following the theft by animal rights activists of video tapes of the experiments. These showed monkeys and baboons apparently struggling to free themselves from equipment, while researchers smoked and made fun of injured animals.

Professor resigns over poly research

by Jon Turney
Science Correspondent

A leading polytechnic researcher has resigned his chair to take up a university post, saying the polytechnic sector cannot support significant research.

Professor Ernest Edmonds' group at Leicester Polytechnic is well-known for studies on the interface between humans and computers - a key part of the Alvey programme of advanced computer research.

He and his team won the largest Science and Engineering Research council grant ever awarded to a polytechnic in 1982, receiving £750,000 for a programme of work on man-machine interaction.

In spite of this, Professor Edmonds now says current policies mean there is no basic support for research in polytechnics. He plans to take 25 staff and research students with him to Loughborough University, where he will hold the chair of computer studies.

Leicester Polytechnic's director, Mr David Bethel, said it was sad to see a polytechnic could lose research so easily, though flattering to have a professor appointed to a university chair. The poly has also lost a second professor, taking up a chair in electronics engineering at Durham University.

"It's going to be extremely difficult for us to maintain research at a high level if we can be outbid so easily," Mr Bethel said.

Professor Edmonds' group were due to move to Loughborough in the new year, but the date has been brought

forward following the closure of their building at Leicester this summer for removal of old asbestos.

The Leicester group's interests dovetail with those of the existing Human Sciences and Advanced Technology (HUSAT) research centre at Loughborough, which is already a focus for Alvey-funded work in the area.

Professor Edmonds said this week there was a general problem with external support for polytechnic research because funding agencies assumed all institutions could cover laboratory overheads in the same way as universities.

But while universities devote around 30 per cent of their central government grant to research as their contribution to the "dual support" system, polytechnics cannot. "Even a polytechnic such as Leicester which received very good treatment from the National Advisory Body this year can only spend around one and a half per cent of its budget on research," he said.

Professor Edmonds' gloomy view of the outlook for polytechnic research was belied this week by news of a separate Alvey project under way at the City of London Polytechnic. A group led by Dr Evan Parker of the polytechnic's physics department is to develop a £1 million project with GEC, Plessey, STL, British Telecom and VG Scientific, testing new methods of quality control and fabrication for very-large scale integrated circuits on silicon chips.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

Cash for prevention programme for heroin addicts

The Scottish Home and Health Department has awarded more than £43,000 to Dr Nick Heather of Dundee University's department of psychiatry and Dr B. B. Johnston, consultant psychiatrist for Tayside area health board, to develop a relapse prevention programme for heroin addicts.

This will be a joint project between the university's Addictive Behaviours Research group and the Wishart Drug Problems Centre, a community based unit offering drug-free treatment to heroin addicts.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

Exclusion angers Scots

by Felicity Jones

Scottish adult educators are to ask the Government to justify why Scotland has been excluded from developmental programmes like PICKUP and REPLAN.

The Scottish Institute of Adult Education agreed at last week's executive meeting to write to the Secretary of State at the Scottish Office to request information about plans to implement the professional, industrial and commercial updating and unemployment programmes which operate in England and Wales.

It has also been requested that the sum made available in the coming year as a once-off payment for International Youth Year should be made available to support adult and continuing education in following years.

Dr Elisabeth Garver, the director of the Institute said: "We do feel hard done by. Less money is made available for adult education in Scotland and yet unemployment is higher than in England and Wales."

The Institute is offering to send representatives to meet with Scottish Office officials to discuss ways in which additional money could be best used to promote and support the development of continuing education.

Strathclyde regional education authority has already written to the Scottish Office to plead the case for introducing REPLAN, the special programme to fund projects with the unemployed.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts, develop a programme to teach ways of coping with situations where relapse is likely, for instance under social pressures, and then evaluate the effectiveness of this programme.

The project will investigate the causes of relapse among addicts,

Cuts threat to medical school standards

by Maggie Richards

Standards of both teaching and more especially research in university medical schools and faculties are being seriously threatened by three years of funding cutbacks.

Feedback from deans of each of the 26 institutions in England and Wales published this week reveals many have been battling to preserve teaching standards, which in some cases have only proved possible at the expense of research and development work.

A survey compiled jointly by the Universities Hospitals Association and the National Association of Health Authorities has monitored the effects of the 15 per cent funding cutback imposed by the University Grants Committee in a phased three-year operation.

Though in most cases it has been possible to maintain services to patients, the UHA in its commentary on the survey points to "some deleterious effects" on teaching and particularly

research. This will directly affect the education of present students - those destined to become responsible for the country's clinical services in the first quarter of the next century.

Cutbacks yet to be implemented are likely to result in a further deterioration in both teaching and research, the UHA adds.

Apart from a further 2 per cent cut in UGC monies, no account has yet been taken of the cutback in Medical Research Council funding, and the considerable impact this will have on high quality research in medical schools and postgraduate institutions, and the effect on science training for some undergraduates.

Redistribution of National Health Service resources over the next 10 years will also lead to a reduction in numbers of teaching and support staff, the UHA suggests.

Many schools, both in London and the provinces, will find it difficult in the future to maintain standards of clinical

undergraduate education, the association adds.

There is serious concern about the increasing amount of time spent by students on secondment with, in some cases, up to 40 per cent of students' time employed in gaining bedside clinical experience.

"It has long been the consensus view of deans and their teaching staffs that, extremely valuable though such secondment is for the student to gain an idea of the medical world outside the teaching centre and expert and dedicated though their extramural teachers may be, a third of their time spent in this way is about the limit if such experience is not to become an 'ad hoc' apprenticeship", the UHA commentary says.

Over three years the medical schools have lost 152 clinical academic staff, plus additional technical and secretarial posts. On average 12 posts per school have disappeared.

Principal departmental reductions, according to the survey, have taken place in larger mainstream specialities. There is serious concern in particular about pathology, which has accounted for some 33 per cent of overall staffing losses.

Among individual comments from schools, which are not identified by name in the survey, there are frequent references to mounting staffing pressures affecting both research and teaching. Some report teaching standards now having to be maintained at the expense of research.

Where schools have sought to boost income from external sources they have found staff must devote increasing amounts of time to chasing funds as competition for cash becomes fiercer.

A parallel report surveying the effects of reduced funding on dental schools also concludes the commitment to teaching at undergraduate level has been maintained only at the cost of research time.

Principal departmental reductions, according to the survey, have taken place in larger mainstream specialities. There is serious concern in particular about pathology, which has accounted for some 33 per cent of overall staffing losses.

Among individual comments from schools, which are not identified by name in the survey, there are frequent references to mounting staffing pressures affecting both research and teaching. Some report teaching standards now having to be maintained at the expense of research.

Where schools have sought to boost income from external sources they have found staff must devote increasing amounts of time to chasing funds as competition for cash becomes fiercer.

A parallel report surveying the effects of reduced funding on dental schools also concludes the commitment to teaching at undergraduate level has been maintained only at the cost of research time.

Where schools have sought to boost income from external sources they have found staff must devote increasing amounts of time to chasing funds as competition for cash becomes fiercer.

A parallel report surveying the effects of reduced funding on dental schools also concludes the commitment to teaching at undergraduate level has been maintained only at the cost of research time.



YOU CAN ALWAYS SPOT THE FRESHERS - THEY'RE THE ONES HEADING FOR THE LECTURE HALLS

Row over science merger

The proposal to merge part of the University of Ulster's science faculty at its Jordanstown campus with the faculty of technology has been overwhelmingly rejected by science staff, with 51 voting against and only nine for the measure.

The faculty of technology also appears the move, with staff seeing it as diminishing their promotion prospects.

Sir Keith also asked for reasoned arguments in response to the Government's Green Paper, the tone of which he admitted "could - perhaps should - have been different".

He said the central message of the Green Paper was that by and large the higher education system was doing its job, but important changes were needed over the next decade in the interests of the nation's economic and social development, of quality, and of value for the taxpayers' money.

He also said he was "passionately concerned" about the humanities and could not understand why the Government's modest shift in favour of science and technology was thought to undervalue the arts.

A science faculty spokesman reports a general belief that the merger will now, at any event, be ratified by the senate, however vehemently staff protest.

CBI leaps to unit's defence

The Confederation of British Industry has defended the Further Education Unit which faces a reduction in Government funding.

Mr Terence Beckett, director-general of the CBI said in a letter to Sir Keith Joseph, Secretary of State for Education and Science, that though the CBI supported the Government's approach to overall cost-cutting, the FEU plans defeated the objective.

The CBI has through its college panels been encouraging means of increasing cost effectiveness and responsiveness of the colleges of further education," he said.

"We see the respective roles of the FEU in curriculum development and of Coombe Lodge in improving management of colleges as very important agencies for achieving cost savings and responsiveness."

Such lessons which did emerge in the further education sector the CBI thought could be further applied to the school curriculum.

What's up, Doc, with drinking?

Doctors' notorious tendency for heavy drinking has its roots in their student days, according to Professor Anthony Clare, professor of psychology at Barhollows Hospital medical school. He says that alcohol is more of a problem than drugs.

"Alcohol is the social lubricant of the medical student's life," he writes in the *British Medical Association Student News*.

"From rugby pitch to May ball, from pre-examination nerves to post-examination celebrations with peers and seniors, alcohol is the crucial catalyst and facilitator."

Quality threatened by tougher tenure

from William Norris WASHINGTON

Tenure is becoming harder to achieve at United States universities. In an effort to limit the number of professors, many colleges are raising their criteria. The result, according to Ernst Benjamin, general secretary of the American Association of University Professors, has been to threaten the quality and character of the professoriate.

In an interview with the *Chronicle of Higher Education* Mr Benjamin said this week he feared that with tenure becoming increasingly elusive, the best students might no longer become professors. "If it is so hard to get tenure, no one sensible will want to be a faculty member, because what is the point?"

He claimed that officials who made tenure decisions were requiring faculty members to do more research, get more grants, write more articles and publish more works with different publishers. As a result, the road to tenure has become "a rote process".

"Not long ago - Mr Benjamin said, "faculty members could prove themselves by publishing a book with a good publisher and then take things for granted. Now we are demanding great accomplishments to get tenure, but we are not improving the qualifications of the faculty."

He predicted that the professoriate of the future would include more part-time faculty, more full-time professors in positions that do not lead to tenure, and fewer members of minority groups. "There will be a privileged group with tenure, while the majority of faculty members will be part-time. And they may not be as good."

At present some 57 per cent of full-time faculty at American universities hold tenure. Administrators are proving reluctant to grant it to new disciplines, such as computer science, while such traditional fields as English, history and anthropology, are attracting fewer students and becoming clogged with tenured staff. This situation is exacerbated in states which have abolished the mandatory retirement age, where some professors are working into their seventies and eighties and blocking the path of younger men and women.

To encourage them to move over, universities in Maine, Florida, Utah and Wisconsin, are instituting attractive early retirement packages. Other states, including California, Connecticut, New Hampshire and Vermont, have deliberately excluded universities from their general uncapping of retirement.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

ment ages in other occupations.

Meanwhile, some colleges are exploring alternatives which do away with the concept of tenure altogether. They are following the example of Franklin Pierce, a small independent liberal arts college in New Hampshire, where the 39 full-time faculty have been working on "rolling contracts" for the past 15 years. The contracts, granted after a seven year probation, are extended annually for as long as the professor performs satisfactorily.

Such schemes are roundly condemned by the AAUP, which opposes them as a threat to academic freedom. In practice, however, they seem to make little difference to the security of faculty. Some observers claim that they actually slow down the turnover of staff. At Franklin Pierce, where contracts are issued by the dean after a process which includes self-evaluation and assessments by students and peers, only four professors have not had their agreements renewed - and one of them was reinstated on appeal.

The college insists, however, that the system does lead to greater accountability. "Tenure locks in the incompetence," says Wendell Royce, an associate professor of business administration at Franklin Pierce. "To survive the rolling contract system you have to satisfy the standards of the place. There's always an opportunity to sift out people with obvious deficiencies."

The University of Massachusetts, like virtually all large institutions, has not gone over to the rolling contract system. It does, however, have a revised its current administration of being sued by one of its professors in a federal court for denying him tenure.

The professor involved is Roger Libby, 43, whose \$165,000 suit threatens to bring the closely-guarded ritual of granting tenure into open court. Libby is a sociologist who approaches his subject from a liberal standpoint, and claims that this led to his being denied tenure by a conservative group of trustees. He was hired six years ago as an assistant professor in the university's home economics department, and would normally have been considered for tenure in his sixth year.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

The case has become something of a cause célèbre among those who claim that the "new right" is trying to strangle freedom of expression. Other sociologists say that Libby's experience is not unusual, and that sex researchers in his field are scorned and harassed for their motives considered suspect and their discipline weird.

Psychology students accused of cheating

from Charlotte Beyers

PALO ALTO Twenty three Stanford University students from an introductory psychology class of 744 have been charged with cheating.

The students, having violated Stanford's code of honour code face possible expulsion. Since 1960 no more than 20 honour code cases have been investigated in a single year.

"The sad part is that these students, the brightest in the nation, didn't have to cheat to do well," said Professor Phillip Zimbardo.

Two teaching assistants found evidence that students had shared answers on multiple choice exams.

Zimbardo, an exceptionally popular teacher, says that Stanford must decide whether it wants to have such large classes. "It has to reconsider its commitment to undergraduate education," he says.

Class size forced the giving of multiple choice tests that were scored by computer. Students overflowed from



Donald Kennedy: will decide

the assigned rooms and were lying on the floor, sitting on the window sill or the lawn outside. Zimbardo says emphatically that he will never again teach a class larger than 300.

There were only 580 seats for 744 students. Students were tested weekly

and had the option of being graded on a curve or by an absolute standard. As the course progressed, the teaching assistants received anonymous complaints about cheating from six students. In the last week of the quarter, Zimbardo read aloud a letter from a student claiming to be upset because she was working hard and receiving only a B while others were doing better by cheating. Zimbardo said that any cheating would be dealt with as harshly as possible.

During one of the final tests, a student handed the teaching assistant two test sheets signed by two different students. They showed identical answers and had been taken outside the classroom which was not allowed. It was obvious they had gone home and looked up the answers. From there the case spread. The assistant found one group of three students with exactly the same answers. Stanford president, Donald Kennedy, will decide whether or not to expel the 23 accused students.

Health care update for Cuba doctors

from Patricia Smith

HAVANA Cuba is revamping its training programme for doctors to bring it up to date with recent changes in the state health service.

The changes, introduced this month, put more emphasis on the medical student's knowledge of the social and psychological factors influencing health care than the traditional study of physiology and anatomy.

The move is based on research into rates of mortality and morbidity, that is, the frequency of illness, on the Caribbean island, and teaching experience in developed countries.

"The problem isn't simply to cure ill-health but to prevent disease and rehabilitate the patient so that they can quickly get back to everyday life," said rector of the Havana Institute of Medical Sciences Dr Juan Vela.

At present doctors train mainly in hospitals but under the current scheme early study will take place in local polyclinics, a type of community health centre. The logic behind the move is that only 20 per cent of all sick people need to go to hospital whereas the majority when ill see their local doctor.

The first five weeks of the new student's course will take the form of tutorials and observation at polyclinics concentrating on the study of hygiene, epidemiology, the health laws, psychology and medical ethics. Students will return to the faculty to study cellular and molecular biology, anatomy and psychology.

The reforms are one of a number Cuba, which aspires to becoming a world medical power, is introducing to bring health care closer to the local population.

General medicine, similar to general practice, for example, is being introduced as a specialty in the fifth and sixth years of training.

According to the federal minister for

Switzerland 'falling behind on technology'

by Alan McGregor

GENEVA Switzerland's two university-level federal institutes of technology, in Zurich and Lausanne, need more than 1,000 more professors and research workers, if industry is not to fall far behind in such fields as micro-electronics, computer technology, genetics and biotechnology.

This is the main conclusion of a report commissioned by the Council of Federal Polytechnic Colleges from leading Swiss consultants Hayek S.A., whose director, Nicolas Hayek, blames conservatism and government economy measures for the institutes' weaknesses. What is needed, he says, is "nothing less than a small revolution".

Because they are federal - as distinct from cantonal - bodies, the institutes are subject to the ban on creation of new posts introduced by Bern in 1974 as part of measures to balance the federal budget. The number of students has risen since then by 33.5 per cent.

The report advocates stringent rationalization, with elimination of 333 administrative and technical posts by the end of the decade, in conjunction with freeing of 282 existing research and teaching posts. The net requirement for new posts could thereby be brought down to about 600.

This would mean, it estimates, a 5 per cent increase (47 million Swiss francs) in the institutes' budget by 1987.

A report by the Swiss Council of Sciences points to similar conclusions. Until 1979, it points out, Switzerland invested more, *per capita*, in research and development than any other country; today, with 2.3 per cent of GDP spent on research and development, it comes fifth in the international table being preceded by the US, West Germany, Japan and the UK, though still just ahead of France.

Australia signs convention

from Geoff Maslen

MELBOURNE Australia has ratified a UNESCO regional convention on the recognition of studies, diplomas and degrees in higher education. The purpose of the convention is to provide an umbrella under which there can be improved evaluation of qualifications earned in Asia and the Pacific region by other countries in the area.

According to the federal minister for

education, Senator Susan Ryan, this should result in greater mobility of students, research workers, and professionals between countries, as well as promoting the exchange of expertise.

Australia has followed China as the second country in the region to accede to the convention. Similar UNESCO-sponsored conventions are already operating in Europe, Latin America, the Mediterranean, the United States and Africa.

Senator Ryan said the government's early agreement to the Asia-Pacific convention meant that Australia would be able to play an active part in the development of a regional committee to oversee administration of the scheme.

The convention does not oblige member countries to accept foreign qualifications as equivalent to their own, unless they have been assessed as being of equal value by the appropriate authorities.

Senator Ryan said Australia's acceptance of the convention would lead to Australian qualifications being more effectively evaluated by other countries in the region, as well as Australia doing so with those of its neighbours.

Registration boards or professional associations would have the responsibility of determining the recognition to be given to professional qualifications, whether obtained in Australia or in other countries, Senator Ryan said.

Students demand 17% rise

by David Jobbins

Student leaders are to launch a campaign for a better system of financial support next week and have demanded a 17 per cent increase in grants to regain their 1979/80 purchasing power.

Mr Phil Woolas, president of the National Union of Students, this week demanded an urgent meeting with Sir Keith Joseph, Secretary of State for Education and Science in the vacuum left by the non-appearance so far of his department's promised review of student finance.

The students say that the value of the grant has consistently fallen in real terms since the Conservatives took office, with increases limited to less than the rate of inflation. And they are to claim a main away-from-home rate of £2,110 outside London, £2,530 in London, and £1,620 for students studying from their parental homes to correct the erosion.

NUS leaders are particularly angry at the Government's refusal to reconsider its decision to phase out reimbursement of travel costs, and claim that this has already led to significant hardship while creating administrative anomalies.

Mr Woolas said: "We demand this decision be reversed so that students shall not be discriminated against by reference to their ability to find accommodation or by their choice of place of study."

Instead NUS believes that reimbursement in full over a fixed element within the grant be introduced, with £150 for home-based students, £100 for those away from home and living in London, and £50 elsewhere.

Another of its aims

Bernard Crick



The perils and pleasures of proof-reading

I have just seen an advertisement by *The New Statesman* in *The Guardian* (an especially dangerous combination) featuring an article on Northern Ireland by Bernard Crick. This has reopened my wounds about the "Lord Snow" error in this column. My fear was that when one tries too hard to be a wee bit less predictable than the essential parts of a journal, then even scholarly readers may not recognize a "typo" when they see one, but assume innocent assault. Small wonder a lucky colonel once collected heavily from a Surrey newspaper for being described as "a bottle-necked veteran". Since there is no denying that Lord Snow was rather large and had very little neck, the perception of simple human error might seem less plausible than an hypothesis of sabotage somewhere down the long, thin grey line of diminishing responsibility which is modern printing.

own proofs. Now they all blame the Post Office.

American editors notoriously employ over-educated and frustrated graduates to rewrite but everything. Unless the author is very brutal, they level down standards remorselessly until every style becomes the same. They claim that they often have to deal with manuscripts by authors who do not write. Perhaps; but they cannot discriminate. I was once asked to write a history of American political thought. My specimen chapter was the most promising thing, they said, since *Genesis*; but that awkward man our sales manager advised that for such a book to succeed in the college market, there must be an American collaborator. I readily agreed, on condition that the distinguished Quisling took 2 per cent and contracted neither to write anything nor to communicate with me in any way - I suggested several famously avicious and reasonably senile great names; or else that they used an invented name. I made plausible suggestions. They didn't even reply. People often think that I'm joking. But with the kind of money involved I wasn't.

I still shudder to recall the far worse thing that became my name when "over Hazel", the Methodist Beauty Queen of Sheffield, was mentally preparing for her nuptial flight. The signing of the letters at the end of the day had become a ritual she enjoyed. She stood behind me at my desk while I signed, quietly triumphant when there were no mistakes professionally made up by finding some pedantic niggle somewhere. She would not let me sign them in the office. Perhaps she did not want to be corrected in front of "No 2" or perhaps she liked imposing the new knowledge on No 2 herself. I indulged her in this private ceremony because I so often disappointed her expectations of what a professor should be. But though eagle-eyed she did not notice that hideous and recurrent Freudian slip; and I could find no kindly unobtrusive way of pointing it out to her whatever.

I had to end the ceremony so that I could get to work like a skilled faux-moustache, only using Tipp-Ex or Snopaque, when she had gone. She was upset and impatient. She knew it all depended on her to keep me efficient. The assistant bursar may have only let her go so as to stop me pretending not to have received time-wasting circulars. (Perhaps like one of those secretaries in Bonn, she was really working for the other side).

"Please sign 'em now and I'll post 'em from centre on my way home." "No, sorry; not now; I'm busy thinking. I'll post them myself. I'm eating at the 'Hen and Chicks'. It's almost next door to the Post Office." "It's half-a-mile; you'll never know Sheffield, will you, Prof? Besides, aren't you having dinner with the Walklands tonight?" "Well, I'm having a bite first. Now, please, please, or the thought will be gone." One has to be cruel to be kind. She'd have never survived the shock.

When I was a young man there wasn't a newspaper or a weekly that didn't send one a proof. Now nobody does. Well, perhaps the TLS does, but I've quarrelled with them so long ago that I've forgotten what it was all about. I used to say that I would write anywhere, so long as I could read my

In March this year, we initiated the 1987/88 planning round for public sector higher education, with a fairly lengthy letter to all the authorities and colleges concerned. We have since held a series of regional discussion meetings; and taken two further opportunities to write to colleges (in one case, only to those providing initial teacher training) about the planning process. We have asked for returns to reach us not later than the end of November. The beginning of the autumn term is therefore an opportune moment to review the present state of the planning process as seen from Metropolis House.

The November returns are, of course, only the first of the three phases in our planning exercise. In this phase, institutions (by which we mean, of course, both local authority and voluntary colleges, together with their local education authorities and governing/providing bodies) are asked to declare their preferences in response to a centrally declared strategic framework. In the second phase the responses are used as one input in determining provisional Secretariat proposals for each institution on which further consultation then takes place; and in the third final phase, the committee determines our advice to the Secretary of State on institutional allocations, taking into account the responses to the provisional proposals.

The three-stage process is not new. It mirrors that adopted for 1984/85, and there is a little controversy over the processes of the final two phases, it being a normal part of our usual approach for institutions to be consulted about specific proposals concerning them before decisions are taken. Where there is doubt, and from recent evidence both confusion and misunderstanding, it relates to the purposes of the first phase.

It would be technically possible to conduct a planning exercise without the first phase, so that the first occasion on which institutions would be involved would be their receipt of the Secretariat's provisional proposals. In the 1987/88 exercise, this will occur next April. Such an approach has its attractions. In particular, institutions need not go through the difficult internal processes of debate until they receive specific proposals. They have only to react - not to propose. And there would also be less form filling. The possibility of undertaking the exercise without the first phase was considered, but rejected. It would result in an excessively centralized and top-down planning process with the strategy determined without an institutional input. Consultation with institutions would take place only when the scope for change was already heavily constrained.

So we have retained the first phase, and its purpose is clear - to obtain information on institutional strategies and developmental preferences in the light of the constraints which seem reasonably likely to operate. Such information is important and helpful in three ways. First, it constitutes a useful framework for all that follows, taking effective account of the size and nature of each of a widely disparate family of colleges as perceived by each of those colleges. Second, in an aggregated form it can be used as a commentary on the strategic framework initially declared. And third (though by no means less important) we can use it when we are formulating our provisional proposals for each institution.

It is implicit in such an approach that institutions must be offered a framework within which to respond (or, exceptionally, against which to protest). For us, such a framework has two, sometimes conflicting, starting points. The first is the best assessment that can be made of the total sum of money (the "pool") that is likely to be available in the planning year, and the second is the broad shape of the sector towards which we might wish to try to move.

As to the first, the figures underlying the March letter are still valid - a indicative figure provided by the DES for 1987/88 now implies a reduction of more than 2.3 per cent in the real revenue resources available. The first question for us was whether student numbers should be planned to fall to match the cut in resources, or whether a still further reduction in the net unit of resources could be accepted. In the light of the reduction of some 25 per cent in the unit of resource between 1980 and 1984, and the strong



Unfair helpings? A framework, not a straightjacket

In response to Peter Knight's series of articles last month John Bevan and Leslie Wagner discuss the next phase of the National Advisory Body's planning exercise

statements in our strategy advice to the Secretary of State, for which (outside Government) there has been near unanimous approval, it is not surprising that the Committee came to the view that planning must be started on the basis that any reduction in funding in the sector as a whole must be matched by a fall in numbers.

To claim that this betrays an obsession with university values, as has been argued, is to add insult to the injury many in the public sector feel when they study the results of the intersectoral costs comparisons exercise.

There are also two further years of inflation to allow for. We have already had to alert our members to the fact that for every unit by which inflation exceeds the Treasury's figures, we should logically reduce access by a further 2,500 full-time equivalents. It must be stressed, however, that even if the present financial indicators do not change, the reduction will not be applied evenly across the board to each institution.

Financial uncertainty is a fact of life in higher education as in most other aspects of national life. It would be nice if it were otherwise, but that is not the reality. And this is why institutions have been asked to indicate their planning preferences on two different scenarios - a reduction and an increase in first years of 5 per cent. These can be seen as the two ends of a range of possibilities.

The financial framework is hard enough and there might seem to be a good case for not providing institutions with any further guidance from the centre, on the grounds that this would allow them to declare their own priorities unencumbered by any centrally determined academic framework. On the other hand, there were complaints in the last exercise, when we indicated simply that we would wish to see part-time and non-degree work preserved, that insufficient guidance was given.

In particular, it was argued that we should have made clear our academic programme preferences from the outset. So this time we have done so, reviewing and largely confirming the subject priorities of the 1984/85 exercise, and spelling out the implications for the different programme areas within the harsher of the two scenarios. We have emphasized the priority which the public sector must give to part-time and non-degree higher education by indicating that if there is to be a reduction in access, that reduction should be less in these two categories than for full-time and degree courses.

The five major planning parameters for 1987/88, therefore, are those of mode of provision, level of work, region, programme emphasis, and student age at entry. The last of these is somewhat tentative - the first two are well established, and in relation to the third we have so far adopted an explicitly neutral line.

One consequence of the adoption of this set of parameters is the risk of excessive prescription from the centre.

On the other hand, our experience to date convinces us that a significantly smaller number of programmes, or a set of aggregates or programmes, will not suffice for sensible planning. And the real risk comes in our view from the insidious pressure on us, not only at the centre but sometimes from colleges themselves, to specify in more and more detail - perhaps even down to the level of the individual course. This pressure must be resisted - it is of great importance that the balance is retained between inadequate guidance and over-prescriptive specification from the centre.

This is why it is also of critical significance that our planning advice is in terms of target numbers: a concept as significant as when we first spelled it out in 1983, and addressed again in practical terms this year when it formed the subject of an item in our Summer Bulletin.

Moreover, the March letter makes clear that the planning guidance that it contains is an initial national framework. Each of those words is important. The guidance is initial because it will be reviewed in the light of new information, including institutional responses, at the start of the second phase of the exercise next year. It is a national framework, setting the broad aggregates for each programme area, and not the strategy for each institution's individual student numbers in each area. Finally, it is a framework not a straightjacket. It is one factor which institutions should take into account, but it is not binding. If their responses are to be of value, institutions must reflect their own preferences and circumstances.

The question asked of institutions is not whether they prefer a minus 5 per cent change or a plus 5 per cent change in their first year numbers. What they are asked to do is to set out their preferred distribution between the different programme areas within a total first year figure of 5 per cent below or 5 per cent above their 1984 base. It is an exercise in academic planning to which each institution is expected to make its own individual response.

Our task will be to try to reconcile institutional preferences, strengths, and circumstances with the national framework which is finally determined. It will be difficult where the two move in opposite directions; indeed it is generally easier to undertake a planning exercise without knowing institutional preferences. Top-down planning is always more attractive in this sense, because the number of variables and the number of actors is smaller. However, we are not engaged in a paper, but in a real planning exercise of which inputs from those affected by the outcome are an integral part.

Top-down planning is simpler but bottom-up planning is more effective - or at least it can be if all involved approach the process with both confidence and realism. It may seem easier to some to ignore what they perceive to be harsh and hypothetical questions: in the short term difficult choices are avoided. In the longer term, however, such a short-sighted approach may inflict damage not only on the institution concerned, but also on the open planning processes which currently characterize public sector higher education.

The authors are secretary and assistant secretary of the National Advisory Body.

Among several examples of cultural insularity, the most blatant is the neglect of Lodovico Ariosto (1474-1533), Shakespearean Renaissance poets, the greatest of Renaissance poets. Spenser and Milton were steeped in him, as was Byron. Charles James Fox cited him as the motive for learning Italian and Scott was referred to as "the Ariosto of the North."

The insularity which has diverted such a genius from the mainstream of literary study for some 150 years is part of a wider loss of interest from the mid-nineteenth century onwards. Whereas Victor Hugo advised poets to read Ariosto and Homer. Gide, who found time for Arnold Bennett, didn't read Ariosto at all.

One reason for this extraordinary neglect is the supercession of Italian by French as the language of poetic innovation and creative interchange from Baudelaire to the symbolists in modern literature. Another, related to that, is the disappearance of epic after *Paradise Lost* and *Don Juan*.

That it was to resuscitate in the form of movie Westerns proves the tenacity of the form, but for literary purposes it has long been dead, and it happens that *Orlando Furioso*, Ariosto's masterpiece, is an epic poem of 46 cantos. With only a shrinking minority able to read Italian, touch with the original was lost. Harrington's version of 1591 is a monument of Elizabethan verse, but nobody would call it an adequate substitute for Ariosto's pellucid and flexible Italian. Fortunately, Barbara Reynolds brought out an admirably sustained version in 1977.

In addition to neglect of the original, Ariosto's subject - war between Christendom and Islam, but with personae absorbed into myth as Charlemagne's peers and more or less courtly Saracens - could hardly be expected to compete with the comic outlook of Dante during the later nineteenth century.

Ariosto's range is however enormous. It modulates from farce to comedy, from violent action to lyrical tenderness, from frivolity to a probing analysis of human behaviour.

All this is backed up by a solid grounding in the Latin classics, notably Virgil, and emerges in a narrative drive strong enough to admit subsidiary stories and still keep numerous subplots of the main action on course. To recall in brief space a very long work of genius, one may isolate a theme which recurs in the *Orlando*, namely heterosexual love, ranging from acquisitive hunger, through courtly idealism to passion, in which Ariosto was equally indebted to Boccaccio and Petrarch. Rather than discuss a number of episodes about erotic quest as they surge and intertwine through the narrative we may focus on one of them, in tune with the 1980s psychology. That is, the onset of what seems the poem its title: *Orlando's* insanity.

Although the author draws on patois, wild farce and mindless drollery, at its centre the analysis of a human relationship holds firm. The crisis is set up three cantos in advance when Angelica stumbles upon

Lost labour of love



Britain has shamefully neglected Renaissance poet Lodovico Ariosto and his masterpiece *Orlando Furioso*, says Laurence Kitchin

of the love knots linking their names.

But there is more in this delightful episode than the irony of an oriental princess being conquered by a social inferior. For the reader has been given information about Medoro which bases Angelica's choice on qualities true, is such that his life has been spared by a Christian captor merely on the strength of his angelic good looks.

The boy's other qualities are loyalty and courage, demonstrated when he makes a night raid with one companion on Charlemagne's camp in order to give his commander a decent burial. This too has been a detachable episode, sinister and sinister, the aftermath of the Saracen's defeat at Paris, a realistic masterpiece worthy of Tolstoy or Hemingway.

It ends with Medoro lying wounded and alone, to be found by Angelica. Her choice is upgraded as intuition tells her what the reader already knows. In this way the honeymoon passage is given overtones even beyond its intrinsic beauty as a celebration of mutual love, some details censured of course in nineteenth century editions. Most authors, having achieved the night raid and that, would have reached the limit of their powers. But not Ariosto. He is about to show us Orlando mad.

The crack-up of this superman of Charlemagne's peers has already been prepared and crucial to it are the graffiti. In the honeymoon episode they symbolise youth, love and every-

thing life-enhancing. Now they are put into reverse as Orlando, having lost the trail of an enemy in the forest, comes upon the sheltered spring and the woodland near the shepherd's house where the lovers walked.

Never having even heard of the infantry soldier Medoro, he sees this name knotted with that of Angelica first on one tree, then on "a hundred" others. There are as many knots as there are letters and each one of them drives a nail into his heart.

As much as he tries to suppress it, suspicion mounts. He is compared to a bird in a snare, more tightly caught the more it struggles. Then he arrives at a natural grotto, where the lovers have been in the habit of sheltering from the midday sun. They have decorated the entrance with twisted ivy and straggling vine and inscribed their names inside and out, using charcoal, chalk, or the point of a knife, more densely than in the woods.

At this point Orlando dismounts and examines the entrance, above which Medoro has written 16 lines of verse describing his gratitude for having laid it merited the attention from such as Elliot, Leavis, and Empson, which it didn't get; that consequently the neglect of a masterpiece essential to modern literature has continued; and that, in the analysis of jealousy, comparison with *Othello* would not be to Ariosto's disadvantage.

Three, four, six times Orlando reads it trying to convince himself it is an illusion, but seeing the words always more clearly and feeling his heart in the grip of a cold hand. At last his attention remains fixed on the stonework.

At the end of the octave Ariosto's

verse comes down with immense weight on a single word which combines the shocked immobility of *Othello*, impersonal Nature and the grotto itself as he gazes at the rock, "a sasso indifferente".

As in *Othello's* case, we are dealing of course with a man of action lured into emotional territory he's unable to handle. Orlando's misery needs an instant outlet and here Ariosto inserts a homely simile like many of Dante's, that of water in a wide bottle with a narrow neck. Poured hurriedly, it comes out only drop by drop.

So it is for a moment with Orlando, head sunk forwards and down, unable to cry out or weep. He recovers somewhat and tries to deny the evidence. Perhaps what he's seen are forgeries by someone able to copy his lady's handwriting. Feeling slightly better, he mounts his horse and rides off in search of somewhere to spend the night, until he reaches a house, unfortunately that of the shepherd who sheltered the lovers.

There he is offered lodging, but the graffiti have not finished with Orlando yet. The detested inscriptions are everywhere - on the doors, the walls, the windows. He wants to ask about them but dreads the result.

Seeing him so miserable, the kindly shepherd tells him a story in order to cheer him up. Popular with visitors, it recounts a unique event in the shepherd's life: the arrival of Angelica and Medoro and their ecstatic honeymoon. And the listener is shown a jewel given in payment for the hospitality. It had been a gift to his lady from Orlando.

This last blow hits him like an executioner's axe, and in a passage distressing even to the reader, Orlando lurches about in search of a place to lie down and collapse in tears. Groaning and sighing he finds a bed, but realising it must have accommodated Angelica and her lover, leaps off it as if it concealed a snake.

In an outburst of hatred for the bed, the house and the shepherd, he gathers his accoutrements and rides out into the night. Alone in the forest he can at last give an outlet to his grief, howling. He says to himself that Orlando is dead, that what he's conscious of is Orlando's spirit, divided from him.

Action, up to now internal, moves outwards. It begins when he reaches the grotto at dawn. He finds the stonework with the graffiti and hurls the fragments into the stream, along with severed boughs. At length, his energy renewed by a long spell of ominous calm, he discards his armour, even his legendary sword, tears off his clothes and dashes away, stark naked.

What has been the justification for detaching this tour-de-force from such a long poem? Merely to point out that it merited the attention from such as Elliot, Leavis, and Empson, which it didn't get; that consequently the neglect of a masterpiece essential to modern literature has continued; and that, in the analysis of jealousy, comparison with *Othello* would not be to Ariosto's disadvantage.

The author was formerly professor at the City University of New York.

Bespoke learning by the academic tailor

The government, it tells us at election time, is committed to freedom. The message does not come just from the advertising men. The theoretical vaulting pole for Margaret Thatcher's great leap was provided by the likes of F.A. Hayek who made their reputation as defenders of liberty.

But what does Conservative freedom mean? Liberty may be a seamless web, but it can only be identified and defended in detail.

Education provides a good measure of the government's actual intentions. Not only is it an area where freedom and control can easily be distinguished, but it is not at the centre of the Conservative agenda for freedom and it is at the margins that the utility of commitments are best tested.

In a speech this July which included an increasingly characteristic top-down jargon, Sir Keith Joseph announced that the universities were not doing enough to reassure the public that their teaching and research were of the highest standard.

Although the Green Paper rejects the idea of a validating body for the universities, I am still not convinced that the universities in particular (because they are free from external quality control or investigation) are conscious enough of the weight of responsibility that they bear for the monitoring and preservation of their

own standards", he said.

Change the phrase "the universities" and replace it with the words "manufacturers" and you get a very odd speech from a Conservative politician. When did any member of the party ever deplore the fact that industry or finance were "free from external quality controls or investigation" or advocate new measures "for the monitoring and preservation" of standards?

It's a particularly odd speech from a former Fellow of All Souls who plays Trotsky to Hayek's Marx and believes deeply and passionately (as they say) in the market as the test of value and the allocator of resources.

For if the market principle is applied, is not constantly monitored, universities scrutinised and evaluated by being published, attacked and defended in the open exchange of controversy? Every critical review, every tactically devastating research note, every footnoted citation is a price paid, or refused, in the bazaar of intellect.

Research is tested by precisely those challenges which the government professes to so adamantly in the world of business. And what is being proposed as an alternative to this?

The Secretary of State refers to "quality control or investigation". By whom? Instead of the test of free

discussion, perhaps there is to be some agency, such as the inspectors Sir Keith used recently to "control" and "investigate" the teaching of sociology, or the inquiry that was set up to "investigate" the study of industrial relations at the University of Warwick?

It doesn't matter whether the check is external or internal. The method is the same. Those who want to establish some kind of agreement board for research can only do so because they distrust the consequences of free intellectual interchange, and are unhappy with the necessary confusion of inquiry, seeking to replace it with approved conclusions and certified methods. Socialists used to speak disparagingly of the anarchy of the market. Conservatives seem equally alarmed by what they see as the anarchy of research.

The belief in planned research isn't some aberration within new right thinking. It has always been clear that there was a contradiction between the government's rhetoric about the relation between state and society, and its policy towards education, and in particular, towards higher education. The paradox represents the heart of the new right. The new right is politically coherent, but intellectually incoherent.

Equally important, the Tory strand which both Hayek and the free market

An argument that there is an intellectual coherence to the New Right might be that the present policy could be justified in market terms if the state is accepted as the only person allowed to do so. Then direction becomes not direction, but bespoke learning by the academic tailor for the ministerial agent.

The ideologue of this intellectual incoherence is, again, Hayek, who is sometimes a liberal, sometimes a conservative. In matters of culture, in education and thought are intellectual interchange, and are unhappy with the necessary confusion of inquiry, seeking to replace it with approved conclusions and certified methods. Socialists used to speak disparagingly of the anarchy of the market. Conservatives seem equally alarmed by what they see as the anarchy of research.

Markets have to be built, and though within the limits inside which they operate they may be free, those limits are not freely set. They are formed by all the various mixes of coercion, harassment, and persuasion which are at the disposal of any government. What the present government wants is not just any old market, but a market working in a particular way, preserving certain values, excluding others. It is to be a market with cultural price controls.

Equally important, the Tory strand which both Hayek and the free market

government represent is deeply suspicious of variety and unpredictability in intellectual and cultural matters. It believes, or hopes, that there is one (usually "traditional") way of doing things, and that both uniformly correct methods and questions can be found or imposed in education and in much else. "Relevance" and "usefulness" have been stolen from the technocratic radicals to become the heribride of the new right.

Consider what happens when the wording of the Secretary of State's latest pronouncement is translated out of managerial jargon into plain English. Enoch Powell recently gave the clue when he commented that when he was engaged in university scholarship, people did not speak of "research", but engaged in publication preceded by thought.

But follow his usage and you get close to the frontiers of tolerance of even the government's own supporters. If we adopt Powell's description, then what Sir Keith is recommending is the "control", "monitoring" and "investigation" of publication and of thought. It doesn't seem so harmless after all.

Rodney Barker

The author is lecturer in political science at the London School of Economics.

BOOKS

Fighting a people's war

Defending China
by Gerald Segal
Oxford University Press, £17.50
ISBN 0 19 274701 X

Like the other major powers over the last thirty-five years, China has deliberately used armed force in pursuit of its foreign policy on more than one occasion. But despite the importance of China in global and regional perspectives there have been few attempts to examine carefully why and how China resorted to armed force at these times. This important and challenging book by Gerald Segal should be of great interest to scholars and policy makers alike.

Parting company with the few previous studies that have claimed to detect very distinct patterns in the Chinese management of crises and in the use of force, Segal finds no such coherence. His study is divided into two parts. The first considers in separate, succinct chapters, where geography, history, ideology and institutional factors may have "determined" the character of Chinese strategy. While he acknowledges that geography and ideology in particular have been important in shaping Chinese strategy, Segal concludes that neither separately nor collectively can they be said to have determined specific Chinese actions. He argues that they provide no more than a setting against which "modern" Chinese strategy seems overwhelmingly a result of pragmatic reactions to changing factors in any given crisis.

The core of the book lies in the chapters of part two that examine in a critical, crisp and clear-eyed way seven major instances of China's use of military force. Segal shows that Chinese objectives and behaviour not only varied widely between one crisis and another, but that they often varied within a given crisis. For example, in the Korean War the Chinese first intervened for defensive purposes after their failure to deter the Americans from approaching the Chinese border, but then as they perceived an opportunity they sought to press south beyond the 38th Parallel, only to settle finally for a positional war of attrition along roughly the contemporary cease-fire lines. Thus both the objectives and the methods of fighting changed as the situation unfolded. Similarly, Segal finds no consistency in Chinese patterns of signalling to their adversaries either at the onset or during the course of crises. Contrary to Chinese claims, they do not always "mean what they say". Not surprisingly, Segal shows that China's leaders have not always been successful in their management of crises.

Although at times Segal appears to suggest that China has acted "like any other power" and despite his continual emphasis on the flexibility and pragmatism of China's behaviour, he does point to certain special characteristics of Chinese strategy. These arise from the country's geographical size, huge population and third world poverty coupled with the communist revolutionary experience that give reality to people's war (rightly interpreted as a highly flexible strategy) and that result in a bias towards ground combat. But more crucially, he sees this bias as derived from economic weakness and the lack of modernized armed forces. As those conditions change so would expect the land bias to change too.

This is a fast paced book that is well organized and that keeps its central arguments always in sharp focus. Not all will agree with the main theme or with some of the more controversial judgements made on specific crises. But Segal has raised to a new level the debate on the alleged uniqueness of Chinese strategy. In fact it could be read with profit by students of international relations in general.

Michael Yahuda

Michael Yahuda is senior lecturer in international relations at the London School of Economics.



A British infantryman with a new PIAT anti-tank weapon, 1944. From *Soldiers: a history of men in battle* by John Keegan and Richard Holmes (Hamish Hamilton, £12.95).

Labour's record

The Labour Government 1974-79: political aims and economic reality
by Martin Holmes
Macmillan, £25.00
ISBN 0 333 36735 9

Why should anyone be interested in the history of Labour governments and their economic policies? Clearly we need to study governments in power, since we want to know how to improve our economic management. But what is special about Labour governments? The obvious answer is that the economic policies of Labour governments should tell us about the possibilities and limits of democratic socialism in a mixed economy.

If anyone approaches Martin Holmes' book in the expectation that they will learn about such matters as democratic socialism, they will be disappointed. In this clear and informed history of the 1974-79 Government Holmes shows how Labour's aspirations constantly encountered the practical limits of economic management. That is a familiar story. What is more important is that these practical limits affected not the distinctive goals of Labour, but the objectives that have been common to all postwar governments up to Thatcher: full employment with stable prices and an increased rate of economic growth without a large deficit on the balance of payments.

As Holmes tells the story the most successful thing that Labour did was to implement the 1976 International Monetary Fund policy of public spending cuts. The effect of this package, according to Holmes, was to bring down the rate of inflation and improve confidence in sterling without significantly worsening unemployment. That interpretation is at least controversial, since it attributes virtually no effect to the imposition of incomes policies since 1975. Be this as it may, there is

An ill wind

Miracle of Deliverance: the case for the bombing of Hiroshima and Nagasaki
by Stephen Harper
Sidgwick & Jackson, £10.95
ISBN 0 285 99282 4

While the case for the bombing of Hiroshima and Nagasaki is one of this book's interwoven themes, most of it is historical narrative of the causes of Japan's entry into war and of the course of the war itself working up from a simplified start to a detailed description of the large British/Commonwealth landing north of Singapore on September 9, 1945 - Operation Zipper.

What? September 9? Didn't the war end on August 14? Well, yes - and no. That was when the Emperor momentarily spoke up to tell his military chiefs that they must surrender; a decision at once embraced and announced in Washington and London. But suicide planes were still attacking allied warships on the 15th, and the readiness of the Japanese generals in Malaya, Java, etc. to throw in the sponge remained for many days

Irish questions

British Policy Towards Ireland 1921-1941
by Paul Canning
Oxford University Press, £22.50
ISBN 0 19 820068 4

Yet another book on Anglo-Irish relations between the wars? Paul Canning's study of British policy in Ireland in the two decades following the signing of the 1921 treaty might at first glance appear superfluous. Special studies have been made of the troubles of 1919-23; Ireland and the British Commonwealth in the 1920s; republicans and imperialists, 1923-1938; and Ireland, Britain and the Second World War. What other worlds are left for the historian to conquer?

There are always other worlds for the historian if he can meet one or other of history's main demands: the uncovering of new material; or the reinterpretation of old material in an original way. Paul Canning's book fits somewhere between these exigencies. He has delved energetically into the archives and has studied an impressive array of official and private papers, many of which have never been used to elucidate Britain's Irish policy at least; and he has given a sound well-constructed treatment of the period which offers new food for thought.

Canning's understanding of the British political scene, and of Britain's imperial and international preoccupations, enables him to trace Anglo-Irish relations through a transitional period when they were at once of domestic, diplomatic, economic and military importance. His story unfolds coherently because it concentrates on the attitudes and policies of failure and yet well-meaning politicians - men like Winston Churchill, Ramsay MacDonald, and Neville Chamberlain, all of whom transcended - or deserted - their ideological heritage. Churchill, the liberal, doggedly opposed Irish

Albert Weale

Albert Weale is professor of politics at the University of East Anglia.

Volume 7 of the *Policy Studies Review Annual*, edited by Ray C. First, has been recently published by Transaction Books. It is distributed by Clio Press at £39.60.

In doubt. Not until MacArthur's ceremony on the Missouri in Tokyo Bay, September 2, did the surrender seem definitive. Even so, the men of Zipper wondered, as they sailed up the Malacca Straits, what was in store for them. It was a good thing that nothing was in store; for Zipper was initially a glorious cock-up. Had the Japanese opposed it, the losses would have been enormous, and something like a Gallipoli might well have followed. From such a blood-letting, the bombing of Hiroshima and Nagasaki had evidently saved them.

That sense of "miraculous deliverance" (Churchill's phrase) was virtually universal among the allied fighting men, who had been taking heavy losses as they pushed the Japanese back towards their home islands and to whom the ultimate invasion of those islands would bring heavier losses still. Nor were the men and women in armed forces the only ones thus impressed. There were also the civilian populations of Japanese-occupied territories, many of whom in a bad way, and about 300,000 allied prisoners of war and internees in Japanese hands; theirs too was felt to be a miraculous deliverance from a fate daily more deadly.

Calculations concerning those lives and deaths were prominent in the discussions held among the tiny group of top-level Americans who had to decide, after the test explosion on July 16 had given them an atomic bomb, when, how and where to use it. The discussion has gone on ever since. The problems they half-saw have stayed to haunt us. No wonder that the grounds of their decision-making (Mr Harper's résumé of them in his last chapter is very good) have been gone over again and again ever since. It is highly desirable that they should be. To the extent that those men came to a judgement, including allowing themselves to be swayed by emotions and pressures they could have resisted, then their posterity had better understand why. To the extent that they didn't, there is, after all, no reason why that first use of the nuclear weapon, in those circumstances, then, should not be the last.

Let it not be forgotten how extraordinary those circumstances were. Japan was already well defeated, as the well known (and, thanks to the American code-breakers, were known to) yet it couldn't quite bring itself to the point of surrender. For what, by rational "western" standards, were the oddest of reasons: a preference for death instead, and reverence for the Emperor, whom the victors seemed likely to mishandle.

What on earth were the Allies to do? Go on waiting, while prisoners of war died by hundreds daily and the troops

Irish questions

British Policy Towards Ireland 1921-1941
by Paul Canning
Oxford University Press, £22.50
ISBN 0 19 820068 4

Yet another book on Anglo-Irish relations between the wars? Paul Canning's study of British policy in Ireland in the two decades following the signing of the 1921 treaty might at first glance appear superfluous. Special studies have been made of the troubles of 1919-23; Ireland and the British Commonwealth in the 1920s; republicans and imperialists, 1923-1938; and Ireland, Britain and the Second World War. What other worlds are left for the historian to conquer?

There are always other worlds for the historian if he can meet one or other of history's main demands: the uncovering of new material; or the reinterpretation of old material in an original way. Paul Canning's book fits somewhere between these exigencies. He has delved energetically into the archives and has studied an impressive array of official and private papers, many of which have never been used to elucidate Britain's Irish policy at least; and he has given a sound well-constructed treatment of the period which offers new food for thought.

Canning's understanding of the British political scene, and of Britain's imperial and international preoccupations, enables him to trace Anglo-Irish relations through a transitional period when they were at once of domestic, diplomatic, economic and military importance. His story unfolds coherently because it concentrates on the attitudes and policies of failure and yet well-meaning politicians - men like Winston Churchill, Ramsay MacDonald, and Neville Chamberlain, all of whom transcended - or deserted - their ideological heritage. Churchill, the liberal, doggedly opposed Irish

D. G. Boyce

Dr Boyce is reader in government at University College, Swansea.

(mainly of course American) training for the invasion braced themselves to die by tens of thousands? In so far as the atomic decision-makers were until the last moment reluctant to let the Emperor off the hook, who can be sure they were wrong? Japanese culture and politics did need to be drastically purged of the racist and fascist tendencies which had given rise to imperialism aggression so singularly unmitigated anywhere except on Germany's eastern front. And the story of Unit 731 (the "Aldermaston" where POWs were used for experimentation) entitles one to reflect that if the Americans were driven to overcome legal and moral inhibitions in the launching of warfare in the nuclear mode, the Japanese had been less inhibited in launching the biological.

The tragedy of the people of Hiroshima and Nagasaki includes their inescapable involvement in the fate to which their form of society and government dragged them; a fate from which their rulers gave them no deliverance until too late.

Geoffrey Best

Geoffrey Best is currently visiting fellow at the Centre for International Studies, London School of Economics.

BOOKS

Is Spain different?

Dramatists in Perspective: Spanish theatre in the twentieth century
by Gwynne Edwards
University of Wales Press, £19.95
ISBN 0 7083 0881 03

For most British theatregoers modern Spanish drama is represented, if at all, by dimly recalled productions, often declaimed in inappropriately RADICAL tones, of the rural tragedies of Garcia Lorca. It is true that London and Edinburgh have seen some Valle-Inclán and Lorca, and Chester can boast a Buero Vallejo world premiere, but these few swallows have brought no summer. The situation differs elsewhere: in France and Italy important productions of the works of Valle-Inclán, Alberti and Sastre have leavened the lump of Lorca and ensured some recognition for 20th-century Spanish drama. At the same time Spaniards are familiar with the best of postwar British theatre, and with the worst - the smash hit in Madrid just now is a Ray Cooney farce.

In *Dramatists in Perspective* Gwynne Edwards sets himself a double aim, not only to produce the first book-length study in English of a group of major Spanish playwrights of the present century, but also to argue that those playwrights should be viewed within a European rather than a purely Spanish context. He is, of course, particularly well qualified to undertake such a task. In *Lorca: the theatre beneath the sun* while emphasizing the fundamentally Spanish quality of

Russian literary panorama

Handbook of Russian Literature
edited by Victor Terras
Yale University Press, £25.00
ISBN 0 300 03155 6

Handbook of Russian Literature covers ten centuries of literature, including nearly 1,000 entries by 106 leading scholars. Devised, printed and almost exclusively written in the United States (nearly all the contributors are based in American universities), the Handbook is a vast and informative compilation, offering over 500 large-format, double-column pages.

Although entries are arranged alphabetically, from *Ablesimov* to *Zvezda*, the magnificent panorama of Russian literature accumulatively unfolds, from its ancient folklore and earliest written texts (see the lucid discussions of folk song and the 12th-century *Slovo o polku Igoreve*) to our present century's structuralism, modernism and socialist realism. Most entries are devoted to individual writers, critics and philosophers, with major authors receiving extensive treatment. Six pages are allotted to Dostoevsky, four each to Pushkin, Gogol and Lev Tolstoy, and about two to some 25 important writers. These range from the pioneers of the 18th century (Lomonosov, Derzhavin and Karamzin, as yet insufficiently known in the West) to the 19th-century poets, novelists and dramatists who established Russia's literary prominence in the world arena, and on to the remarkable writers of the present century, particularly poets stemming from such movements as symbolism, acmeism and futurism. The Handbook duly records the achievements of them all, from Blok and Bely to Esenin and Mayakovsky, from Tsveteva and Akhmatova to Mandelstam and Pasternak.

Unlike the Soviet nine-volume *Kratkaya literatura ensiklopediya* (Short literary encyclopedia), the *American Handbook* provides entries on numerous émigré writers, including Solzhenitsyn, as well as a four-page survey of émigré literature and items on samizdat and various émigré journals. Just occasionally anti-Soviet bias obtrudes, as in the description of Lenin

Lorca's work, he also placed it firmly within the European theatrical avant-garde. On the other hand, he sought to correct a different imbalance in *The Discreet Art of Luis Buñuel*, arguing that the director's debt to his Spanish background had been unjustly ignored. In his latest book, he again examines the tensions between local and European traditions and sets five dramatists - Valle, Lorca, Alberti, Buero and Sastre - firmly within the framework of post-naturalist stagecraft. This is seen in terms of the shift away from 19th-century boulevard realism: evolving through symbolism, expressionism, surrealism, down to Brechtian epic theatre. The five dramatists studied are deemed to follow this European way and to avoid the primacy of the Spanish commercial houses.

It is not surprising to see the European dimension emphasized in this way. In the period following the Civil War committed critics in Spain dismissed Lorca as a luxury, an exponent of post-Bizet Andalusian schmaltz. The case for Lorca was put by critics and directors who saw his matter as universal and his manner as recognizably akin to that of Synge or the avant-garde. More recently Francisco Ruiz Ramón has linked the ignorance of Spanish theatre in the English-speaking world with the tourist poster view that "Spain is different". Under one of Franco's ministers, still regretfully in active politics, Spain was sold as a tourist resort that was another world, within Europe but different from Europe. No wonder then, Ruiz Ramón argues, that this had a cultural spin-off, that western critics ignore Spanish playwrights but concern themselves with "second-rate authors who, like John Osborne, write in English". It can be seen, therefore, that Gwynne Edwards is breaking a lance in a fairly bitter little skirmish, though he does not refer to Ruiz Ramón's blast.

His approach is, in the circumstances, admirably cool and moderate.

as "first Communist dictator of Russia", and the references to "Party hacks or 'official writers', who sacrificed their talent, principles and individual values by placing them at the service of the Party", "mediocre, talentless bureaucrats, literary hacks rather than artists". A rare example of an unjustly dismissive entry is that on the proletarian poet Kazin, who is more fairly described elsewhere as a "genuine poet".

The Handbook includes lengthy articles on periods, movements and genres in Russian literature. There are valuable entries on romanticism, realism, and formalism, and on drama, the novel, and the short story. Substantial articles illuminate areas peculiar to 19th-century Russian literary history, such as Decembrism, nihilism, Slavophilism and Westernism. That criti-



Boris Pasternak

An introductory chapter sketches the development of Spanish theatre from the 18th to the 19th century, following the original healthy development, commercial management, and the rise of modernist audiences with problem dramas and frothy comedies, played naturalistically on cheap sets, by well-dressed actors. Professor Edwards sets out to demonstrate that his chosen dramatists sought to break the chains of naturalism - at times, as in the case of Valle, anticipating French and German developments and at times, I would add, as in the balefully Brechtian exercises of the 1960s, slavishly following them.

Of course Gwynne Edwards is too perceptive a critic not to remind us fairly frequently that these writers were also working within a Spanish tradition. Even so, he underestimates local circumstances occasionally, notably in neglecting the influence of Madrid's parodic theatre tradition when looking at Valle-Inclán's *Luces de Bohemia*. The Spanish equivalents of Marie Lloyd and Lupino Lane were as non-naturalistic as Edward Gordon Craig and were just as influential. Moreover, the picture of playwrights who altruistically disdain all contact with the commercial theatre and star actors is unrealistic. Valle, Lorca and Buero were very much at home in Madrid's West End, even if the former ultimately rejected it and the latter was sustained by the national theatres.

The central thesis may, then, need to be refined but the other aim of this worthy book, the introduction of an important dramatic tradition to students of theatre, is well fulfilled. They may well be surprised by the flexibility and experimentalism of some of these dramatists.

Derek Gagen

Derek Gagen is lecturer in Spanish at the University of Manchester.

cal cliché the "superfluous man" receives splendid treatment from Hugh McLean, whose contributions stand out for their wit and intelligence.

Perhaps inevitably, since the prime aim is to be informative and "objective", the literary style of most contributors lacks individuality, and their judiciousness precludes the excitement of outrageous eccentricity. Inevitably too there are some errors and omissions. Despite these slight criticisms, Victor Terras and his team have provided an invaluable reference work for specialists and non-specialists alike.

Gordon McVay

Dr McVay is lecturer in Russian at the University of East Anglia.

A life in literature

Pasternak on Art and Creativity
edited by Angela Livingstone
Cambridge University Press, £27.50
ISBN 0 521 23842 0

Art, for Boris Pasternak, is implicated in his transition from unconscious infancy to consciousness, his waking at the age of four to the sound of his pianist mother and two friends playing a trio. Consistently from then on he associated art with the idea of urgency and speed, saw it as something essential to the material world, central to human understanding. As he wrote in "Some Propositions", of 1918: "A book is a cubic piece of burning, smoking conscience - and nothing else... Without it, the spiritual race would have had no continuation. It would have become extinct. Monkeys had no book."

Pasternak's childhood and early maturity brought him encounters with artists of the stature of Rilke, Scriabin, Tolstoy and Mayakovsky, and with the philosopher, Hermann Cohen. These meetings are related in his longest and most brilliant meditation on the relationship of art and life, *A Safe Conduct* (1929-31), which forms the core of this book. He discusses the seemingly random experiences that made a poet, recalling, for example, the impression made on him in the spring of 1901 when "a company of Danubian amazons was put on show in the Zoological Garden". This and

A Swiss role

The Plays of Max Frisch
by Michael Butler
Macmillan, £25.00
ISBN 0 333 36276 4

Max Frisch, born in Zurich in 1911, has acquired a reputation beyond the confines of his native Switzerland as great as that of any living writer in the German language. While his standing as a novelist is high, it represents success. *I'm Not Sittler* (1954) and *Homo Faber* (1957), would not necessarily feature in a list of the most significant European novels produced in the last fifty years, but a similar list of modern plays would be obliged to include at least *The Fire Raisers* (1958) and *Andorra* (1961). Dr Butler, who has already written on the novels, now provides a clear succinct introduction to the plays.

Frisch's major themes have changed remarkably little since he first set them out in his *Sketchbook 1946-1949*. From those days onwards, his preoccupation in both the novels and plays has been with personal identity and its fragility. The individual who attempts to escape from an imposed identity (Anatol Stiller in *I'm Not Sittler*, Martin, the hero of the play *Count Ostermeyer*, 1951) finds that assuming a false persona does not bring unconditional freedom. Individual identity is dependent upon sustaining a working relationship with others. In *Don Juan* (1953) Frisch attacks the conditioned cultural expectations of his audience by presenting the hero struggling to escape from his literary image and establish his true identity.

For Frisch the roots of modern political catastrophe lie in the failure of social events to impinge on private lives. The individual bears primary responsibility. In *The Fire Raisers*, a modern "Morality without a moral", as Frisch called it, two witty arsonists infiltrate a bourgeois household and brilliantly manipulate the self-deceiving middle-class houseowner into turning a blind eye to his own imminent destruction. If Biedermann is disastrously deceived, as Michael Butler demonstrates, by his famous attempt to protect a false identity, the problem of identity is approached from another direction in *Andorra*: that which we project on to other people.

Andorra is a dramatic realization of Frisch's *Sketchbook* theme of the "graven image" which bourgeois society makes of others. An Andorran, presumed to be a Jew and therefore persecuted by his fellow-countrymen to possess all the "Jewish" characteristics,

other memories are strung into a glancing, surreptitious poetical autobiography of astounding allusive power. Pasternak writes compellingly about Scriabin and his own passion for music, about Verne, but all these individual encounters are subsumed in a continuing, unobtrusive concern with the evolution of his own perception of art and experience.

The third, final part of *A Safe Conduct* examines the history of his relationship with Mayakovsky. Here Pasternak writes some of the wisest words that have been written about his great poetic colleague, inspired by love, admiration, disappointment, embarrassment and final devastated pity. Of Mayakovsky's first play, *Vladimir Mayakovsky. A Tragedy* (1913), he says: "The title concealed a discovery which had the simplicity of genius: 'The poet is not the author but the subject of the poem that addresses the first person. The title was not the name of the author but the surname of the content'. Pasternak, however, came to distrust the 'conception of biography as spectacle' and parted company with it 'before it smelt of blood'. 'I avoided it... as a brilliant unsuited to me, because, having confined myself to my craft, I feared any kind of poetizing that would place me in a false and unsuitable position.'

Of course, utter commitment to his craft also characterizes Zhivago, and extracts from *Doctor Zhivago* form the other major section of this book. As Angela Livingstone demonstrates, the novel is overwhelmingly concerned with art, seeing it as an adequate response to the inevitability of death

tics, is finally done to death while the Andorran stand by and fail to prevent his murder. The play is not limited to either the role of Switzerland (though, inevitably, the parallel asserts itself) or to German indifference to the holocaust. The target is more general: "the insignificant and apparently harmless beginnings, the first cracks in the wall, the unthinking conformism, for which a vigilant watch must be kept." Andorra was written before the 1961 Eichmann trial in Jerusalem, but its theme shows a remarkable prescience of Hannah Arendt's famous insight into the "infernal banality" of evil.

The combination of a relatively straightforward socio-political message and a brilliant theatrical formulation of that message typifies Frisch's best plays. It is as much in evidence in the drama of the new atomic bomb era, *The Great Wall of China* (1947), whose simple theme is still as incontestably as ever. (To quote Dr Butler, "the discrepancy between the vast physical power at Man's disposal and the puny moral resources he possesses to control it") as in the more recent *Triptych* (1978), where Dr Butler suggests that "the formal brilliance of the play raises the banality of its theme to the level of art." Straightforward didactic message and brilliant theatrical medium remind us of Brecht, but there is a difference, however. Since 1945 the simple parable form which Frisch has favoured has become increasingly inappropriate as a vehicle for his perceptions. The clichés and "graven images" that are his target have grown more complex. In *Triptych* Frisch takes his earlier analysis of language as the source of fatal "images" a stage further, to show language itself in the very process of petrification. If, as Michael Butler suggests, this play is a "record both of the cruel finality of man's images and of his spiritual cleanness in a world he has ruthlessly defined in his own terms", and at the same time "a comment on literary production itself", then (in contrast to Brecht) Frisch would appear to have abandoned the didactic humanism of the Enlightenment and to have joined the ranks of those modernists whose touchstone of authenticity is misery. Dr Butler, however, presents *Triptych* not as a statement of a weary pessimism, but as the warning of a lively moralist alerting us to the insidious power of what Frisch calls *Tödlische* (lethal negativity), more to be feared than death itself.

Whatever view is taken on this point, however, students of Frisch will be grateful for this succinct and authoritative introduction to his plays.

Alan Bance

Alan Bance is professor of German at the University of Southampton.

and as made by a force similar to the forces of nature and history, as "the story of the happiness of existence". As Zhivago knows: "The only thing that is fabulous is the everyday when touched by the hand of genius. Pushkin is the best lesson in this respect." He therefore comes to see the nature of revolution, the change of the world as motivated by lack of talent. "Man is born to live, not to prepare for life. And life itself... is of such gripping seriousness! So why put in place some childish harlequinade of immature fabrications, these flights of Chekhovian schoolboys to America?"

This volume also contains a wide selection of Pasternak's other writings on art, ranging from his early essays, of 1911-1918, through the speeches of the 1930s and his articles of the 1940s on Verlaine, Chopin, and translating Shakespeare and Shelley, to passages from the *Autobiographical Sketch* of 1956. All the materials are expertly translated by Angela Livingstone and supplied with absorbing introductory commentaries and notes. There are times when Pasternak's formulations are somewhat baffling, but Ms Livingstone's sensitive and lucid introduction and concluding essay, and her ability to draw revealing comparisons with other poets make her an exemplary guide to the evolution of his thinking. Gradually a life lived in and for literature unfolds before our eyes.

Julian Gaffay

Julian Gaffay is lecturer in Russian language and literature at the School of Slavonic and East European Studies, University of London.

BOOKS

London voices

Housing and Young Families in East London
by Anthea Holme
Routledge & Kegan Paul, £13.95
ISBN 0 7102 0362 4

During the late 1950s and the 1960s, the Institute of Community Studies in Bethnal Green published a number of studies which have long since become accepted as "classics" in a range of disciplines including sociology, social administration, architecture and planning. These demonstrated a kind of sociology that went out of fashion in the 1970s but which is now, largely due to the influence of feminist sociological method, beginning to make a comeback.

The sociology was empirical and humanitarian, the writing was vigorous and deliberately accessible, and the analysis and findings were used as the basis for prescriptive policy recommendations. The research methodology and writing were complemented by the researchers' considerable local knowledge of the areas they studied and coloured by their obvious affection for the people they met in the course of their work. Above all and most importantly, between the covers of these books, the residents of the areas under scrutiny were given the space to tell their stories and to make their voices heard.

Anthea Holme's new book continues these traditions in more ways than one. For a start, the initial purpose of her book is to provide a study from the Institute of Community Studies that are probably the best known and most consistently popular: Michael Young and Peter Willmott's *Family and Kinship in East London* (1957) and Peter Willmott and Michael Young's *Family and Class in a London Suburb* (1960). The areas chosen for study by Holme were a part of the London Borough of Tower Hamlets, more or less coinciding with the area studied in the former book, and a part of the London Borough of Redbridge, more or less coinciding with the area studied in the latter. Throughout Holme's book, and most particularly in Michael Young's interesting and useful introduction, reference is made to the changes that have occurred in the two areas over the past 25 years. For example, Holme argues that, particularly in Bethnal Green, there have been considerable changes in life-style and local culture such that the daily content of people's lives in the two areas and their material possessions are increasingly similar. In Bethnal Green, the lack of boundaries between public and private life so graphically described by Willmott and Young have largely been replaced by a yearning for privacy, most frequently expressed by the young mothers interviewed here as a need for a place of their own, away from the pressures of very close proximity to their parents or parents-in-law or the noise of their neighbours through the walls of their council flat.

Certain things have, however, changed little in the intervening years: the Bethnal Green families interviewed for the Holme study were still tenants rather than owner-occupiers and, while the privately rented sector no longer provided them with most of their housing, a number of the families had managed to find housing in the publicly rented sector using much the same kind of route (eg the "sons and daughters" list) as their own parents had used to get into the privately rented sector two decades previously. Moreover, many of the Bethnal Greeners still regarded a council tenancy in high quality council housing as their ultimate housing destination. In contrast, and as in the previous study, the families in the suburb of Woodford were predominantly owner-occupiers, and those that were not felt deeply stigmatized.

The second way in which Anthea Holme's book provides continuity with the previous work of Willmott and Young is that, in research methodology and presentation of her findings, her book shares many of their qualities. Her writing is extremely accessible, and she shows throughout a strong affection for the respondents. She lets

them speak for themselves such that the readers can begin to form their own knowledge and interpretation of the individual "characters" in the book. But this intimacy does not stop her from making broad policy recommendations about how to resolve the growing housing divisions that, she claims, are now the basis for growing inequalities between Bethnal Green and Woodford. In other words, Anthea Holme's book conforms very much to the Institute of Community Studies "house-style".

Paradoxically, however, it is precisely these tested and tried strengths that are also part of the book's weakness. For while we get to know some of Holme's respondents very well, we are also given very little in the way of signposts towards developing a general understanding of where and how these respondents fit in the wider social processes of British urban and suburban life. Frustratingly, much of the material comparing this study with other community studies and most of the more analytical discussion is tucked away in the very full footnotes at the end of the book, while the summary tables, which would have helped place the somewhat anecdotal evidence in context, are tucked away in two closing appendices. The respondents have been given a voice but the volume is so

high that the noise seems to prevent both author (and this reviewer) from thinking.

It is only in the final chapter that Holme opens up into interpretation and presentation of her central theme. There she argues that the growing divisions between Bethnal Green and Woodford lie in the divisions between housing tenure and the increasing difference in rights, privileges, and political clout between owner-occupiers and council tenants. She concludes with a plea for the further development of co-operative housing which she sees as a form of compromise and a bridge between the polarities of the other two more dominant tenures. While all this is perfectly acceptable and, indeed, sensible, there is little in the final discussion that is either particularly original or specifically based on the careful empirical work that has preceded it. This book is ultimately something of a disappointment, although the data contained within it is of intrinsic interest and very well presented.

Clare Ungerson

Clare Ungerson is lecturer in social policy and administration at the University of Kent.



The housing problem as seen by *Punch* in 1945; an illustration from *Now the War is Over: a social history of Britain 1945-51* by Paul Addison (Cape, £10.95).

Appetite for ideas

Georges Sorel: the character and development of his thought
by J. R. Jennings
Macmillan, £25.00
ISBN 0 333 37350 2

Georges Sorel is a fascinating figure because he became deeply involved in some of the major political and intellectual debates of his time. During his years as a man of letters, he followed an extraordinary intellectual trajectory. His writings must be seen, as he saw them himself, as part of a continuous process of learning. Sorel's work was, as Dr Jennings points out, composed largely of comments on other people's ideas. He was above all an annotator and this makes his books difficult to summarize, although it is always possible to extract a telling phrase or argument. Consistency in single works, let alone over the whole corpus of his work, is lacking.

His intellectual stance when he commenced his publishing career with *Le Procès de Socrate* and *Contribution à l'étude profane de la Bible* (both of which appeared in 1889) was that of a conservative moralist. Moralism remained but certainly not a conservative. By 1893 he was a socialist, moving from an orthodox Marxist position,

through a brief phase of democratic socialism to revolutionary syndicalism. With the fading of syndicalism after 1908, (the year of the publication of *Reflexions sur la violence*) he veered towards the extreme right, expressing admiration for Maurras and the direct action tactics of the youth section of *Action Française*, the *Camelots du roi*. In 1912 he wrote two antisemitic articles and, according to one observer, became very antisemitic in the years leading up to the First World War. His active writing life was virtually finished by this time and his consistent pessimism was turning into cynicism. He had one last enthusiasm—for the Bolshevik revolution in Russia and for Lenin who conformed to his ideal of the heroic and skilful revolutionary.

In the light of this intellectual path, it would be easy to dismiss Sorel as a café intellectual, changing his ideas as others changed the cut of their trousers, seeking, and briefly achieving a *succès de scandale*. But Sorel both reflected and contributed to a European-wide intellectual ferment at the end of the 19th and the beginning of the 20th centuries. He was not parochial and had a genuine feel for the intellectual currents of his time. He struggled to understand the implications of the thinking of an impressive range of his contemporaries. Sometimes he took issue with them, savagely and unfairly, but he was following Pareto, Pelloutier and Péguy.

Dr Jennings takes us skilfully through all these (and other) strands of

Questions of value

Understanding Marx: a reconstruction and critique of *Capital*
by Robert Paul Wolff
Blackwell, £22.50 and £7.50
ISBN 0 631 14284 3 and 14285 1

Those who write extensively on Marx appear to go through a strange metamorphosis, beginning their inquiries as specialists in one field and ending up having to become specialists in another. The distinguished American philosopher Robert Paul Wolff seems no exception to this apparent rule. As he himself puts it: "Rereading volume one of *Capital* forced me to revise my unreflective view of Marx as merely a philosopher of the human condition, and to construe him instead as a theoretical economist before all else." While many economists and sociologists are even now treading the path back from their disciplines to the work of Marx's thinking in philosophy, Wolff goes in the opposite direction from philosophy back to Marx's principal preoccupation with economic issues.

On the whole Wolff's book represents an impressive achievement. He is at least as convincing as any trained economist on the main tenets of Marx's position, and for the novice interested in Marx's economics Wolff's work provides as good an introduction as any. The book should be seen as part of a sequence of works, primarily by American and American-based social scientists, such as Roemer, Harve, Elster and Cohen which promises to rehabilitate Marx's economic theory in a significant way. Like other books in the genre, Wolff's contribution reads surprisingly like a conventional contemporary text in economic theory: a great deal of space is devoted to mathematical examples, the theory is always summed up in notational form and the book's purpose is to find in Marx some important empirical propositions on the modern economy that hold true.

Wolff takes as his theme the question of "natural price" in economic theory. In the history of economic thought the conception that each commodity has its natural price appears to march hand in hand with the labour theory of value. For those, such as Smith and Ricardo, who advocated the labour theory of value it was taken for granted that the market price of a commodity did not equal its actual value, measured by the amount of "time and trouble" it took to produce the commodity. However, both Smith and Ricardo assumed that as the prices of commodities stabilized over the long term they would gravitate more and more towards a "natural price" equaling the true value of the commodity. Wolff suggests that it is at this stage in the argument that the difficulties arise which were to beset the

theory of value of classical political economy. Ricardo found that equating prices with values, even in the long term, did not produce a precise fit between the surplus labour supposedly embodied in a commodity and the total profits (including interest and rent) realized through its sale.

Marx, in Wolff's view, made important progress in realizing that it was not the hours of physical labour embodied in a commodity, but the average socially necessary hours that determined its value. More significantly, Marx was able to get to the root of profit creation in a way that escaped other economists in seeing that it was not labour but labour power the employer purchased in the wage contract. Although on the surface this contract represents an entirely fair and equal exchange Marx regards the exchange as an inherently unequal bargain. The capitalist exchanges a fixed sum of value for a commodity which has the unique property of being able to generate value. The capitalist takes advantage of this property to ensure the worker generates sufficient value not only to pay his wages but also a surplus. Here, for Marx, lie the origins of capitalist exploitation which takes place even under the most advanced forms of that mode of production.

An important point that Wolff brings out is that in a dynamic economy natural prices never stabilize at value. Smith has no inkling of this point; Ricardo sensed this so but did not accept the view because of its fatal implications for his system. There are a number of good reasons why prices never stabilize at value in an expanding economy. The first is the changing technical and value composition of capital; the second is the inevitable mismatch between what is produced and what is consumed in a market economy; the third is the difficulty posed by transforming prices into units of time. For Marx value explains price but is never identical with it.

Some of the difficulty of Wolff's exposition may be attributable to the fact that he grasps this point only in a roundabout way. He rightly speaks of Marx's crucial concept of abstract labour time as theoretical abstraction and admonishes Marx for occasionally speaking of value as though it were a natural substance. But behind all this lies Wolff's own mislaid desire to prove Marx's theory solely in empirical terms. This has to be contrasted with Marx's view that his theory of exploitation can be illustrated in empirical terms, but conclusive proof can be provided only in practical-conceptual terms. For Marx's theory to hold true theoretical conviction must grow among the community of economists at the same time as the world is changed. No doubt Wolff's book will contribute to this long overdue process.

Howard Williams

Dr Williams is lecturer in political science at University College Aberystwyth.

the work of one whom Isaiah Berlin described as "an anomalous figure". From the scholarly point of view this is well worth doing because there has been a recent spate of publications in France and America about Sorel, the republication of Pierre Andreu's classic study of Sorel as well as new editions of three of Sorel's best known works. It is good to have Dr Jennings's comprehensive and scholarly assessment of the character and development of Sorel's thought which takes account of recent scholarship. The author is well aware of the difficulty of the task. As H. R. Kayward has written, "Sorel ought to have been condemned to write his own biography: it is too much to ask of anyone else". Dr Jennings wisely refrains from a biography, and stays with Sorel's ideas although he does give some illustrations of the fascination of Sorel's conversation and personality.

The author takes a balanced view of Sorel's work, steering (as he puts it) a middle course between two prevailing views—the first that Sorel was "erratic, unsteady, unhinged" and the second that his thought can be reduced to a dominant idea or preoccupation. He does this by establishing the extent and diversity of Sorel's writings and then by suggesting that there are several important factors which make it difficult to give a systematic presentation of his vast oeuvre. Four subjects—the philosophy of science, religion, politics and ethics—predominated in Sorel's writings and, Dr Jennings argues, in his treatment of each, certain elements

remained unchanged. It is difficult to object to the conclusion reached that the inconsistency of Sorel's thought is most pronounced in his writings on politics. In his political thinking some hostilities did not change—towards the Jacobin state, towards the allegedly corrupt political and intellectual class, towards organized political parties. It can also be argued that a consistent and austere morality emphasizing the values of work, the family, chastity, self-denial and heroism underlies the political outlook. Beyond this the elements of consistency are few.

Is Sorel therefore worth the attention that he is now attracting? The answer must be certainly not if the objective is to seek clear and coherent arguments about any of his major (or indeed minor) subjects of interest. The reader would search his works in vain for these. But if the aim is to understand the history of ideas at the turn of the 20th century, then his writings provide vital evidence. Indeed many are echoes of Sorelian themes emanating from the extreme right and the extreme left, down to the present day. Sorel was not, in any sense, a representative figure but his appetite for ideas was enormous. Dr Jennings has presented to us the results of this appetite in a superbly clear and judicious manner.

Malcolm Anderson

Malcolm Anderson is professor of politics at the University of Edinburgh.

BOOKS

ENVIRONMENTAL SCIENCES

Face of the Earth

The Nature of Physical Geography
by K. J. Gregory
Edward Arnold, £7.95
ISBN 0 7131 6431 X

Whether you see the history of science in terms of paradigms and multi-paradigms, or in terms of more gradual evolution and a multitude of parallel schools, there is no doubt that physical geography, as with all other sciences, has undergone major changes in attitudes and achievements since World War II. The purpose of Professor Gregory's book is to outline those changes, especially in the Anglo-American world, in a form that will be readily assimilated by undergraduates. As such, this book will be immensely useful: examination answers will never be the same again.

What are the main changes that Gregory recognizes? The first of these is the quantitative revolution, with its emphasis on statistical manipulation and mathematical models. Gregory rightly points out that in tandem with this approach there was a continuing concern with chronology, as reflected in the many studies of phenomena such

as sea-level change, erosion surfaces, and, possibly most universal of all, concern with studies of the Quaternary geological period. Another major development was the study of process, mechanisms and rates. Two further trends are identified as having been characteristic of the period from 1950 to 1970: a concern with the role of man in changing the face of the Earth; and a preoccupation with systems as a unifying methodology. Professor R. J. Chorley is the most cited author in the book, and the volume which he produced with Barbara Kennedy (*Physical Geography: a systems approach*, 1971) is singled out as "undoubtedly enormously successful and must rank as one of the most cited and most influential physical geography textbooks of the twentieth century."

When discussing the period since 1970, Gregory highlights the influential paper on "Time, space and causality in geomorphology" by S. A. Schumm and R. W. Lichty (1965) as being outstandingly seminal. He sees temporal change as being a continuing interest, whether in terms of paleoclimates or in terms of the importance of thresholds in determining when and where change takes place. The other feature he sees as being significant in the 1970s is the application of the various branches of physical geography to the solution of practical problems.

Finally, Gregory peers into the "evolving eighties" and emphasizes the likely importance of two developments: remote sensing and information technology. He also notes a tendency for recent textbooks to be more willing to attempt an integration of the various facets of physical geography, although he avers (rightly) that perhaps "physical geographers

Shifting sands

Coastline Changes: a global review
by E. C. F. Bird
Wiley, £22.50
ISBN 0 471 90646 8

For some years Eric Bird has been chairman of a commission under the International Geographical Union concerned with coastal problems. During the past decade this group has sought to document coastal changes worldwide, gradually coming to recognize that the problems of erosion on sandy beaches are not confined to coasts disturbed by engineering structures, but are found in natural environments as well. Over 80 per cent of this book documents these changes country by country around the whole world. Though necessarily selective, the sheer mass of information implies that erosion of sandy beaches is at present more common than stability, let alone progradation—that is, where the land gains at the expense of the sea.

The reports follow a sequence around the coasts of the world that takes us through every country and includes many of the isolated oceanic islands. The scale of detail ranges through two orders of magnitude, from the equivalent of two pages of text for each 1,000 kilometres of coastline for Belgium and Burma, to mere 5 per cent of a page per 1,000 kilometres for Madagascar or the Arctic regions of the Soviet Union, and just 2 per cent of a page for 1,000 kilometres of the Canadian Arctic coastline. In much the same way, the references run from ten or more per 1,000 kilometres for Belgium or Israel to three references for the 7,000-kilometre coast of Greenland. Most of these references are to recent literature in English; where necessary these have been selected from English-language material contributed by national correspondents of the commission.

The reports show that about 20 per cent of the world's coastline is sandy and that 70 per cent of the sites have shown net erosion during the past few decades, only 10 per cent have shown sustained progradation, and the balance of 20-30 per cent has remained stable. It is possible, however, that researchers have selected changing coastlines (whether eroding or advancing) and ignored those where little change is apparent. On the other hand, it is claimed that coasts studied for many decades often show a change from earlier stability to later erosion, reinforcing the data derived directly from this study. Even where longer-term data are not available, most of the eroding coasts show from geological

evidence that they were formed in the first few thousand years after the sea rose to its present level after the end of the last Ice Age, and that they have only started to erode relatively recently.

As these observations have attracted a good deal of attention, a final chapter explores explanations. Some beaches are undoubtedly losing sand because of environmental interference by man; whether unintentional, as when reservoirs cut off the supply of sand from steep rivers; or intentional, when groynes and sea walls are constructed to defend coastal resorts. Yet the prevalence of erosion in less disturbed environments suggests that other causes are at work. As there is a well-known connection between rising sea level and beach erosion, it may be that a rising sea level, probably caused by the melting of Antarctic ice, is the dominant cause. Another possibility is that our beaches, having had time to adjust to the 5,000 years of stable sea level since the Ice Age, are now beginning to erode in an entirely natural way. No explanation seems universal; most are mutually compatible.

Although the book is necessarily something of a catalogue and at times tedious to read, its central theme is dangerously attractive. Yet a word of caution is needed. The book compares short-term (10-100 year) records of beach erosion with long-term (5,000 year) records of net accumulation. That is neither a very scientific, nor a very safe way to proceed. Further, we have at this stage no way of refuting the distinct possibility that the anomaly is not our current erosional phase, but the geologically brief period of progradation (shorelines advancing seawards due to sedimentation) following the remarkable rise of sea level through 140 metres in 18,000 years. Perhaps, geologically speaking, sandy beaches are usually eroding environments; that possibility is not even suggested here. If it is to be tested, we shall need to examine the geological record with some skill.

Keith Clayton

Keith Clayton is professor of environmental sciences at the University of East Anglia.

have spent too much time writing books rather than research papers". Gregory's analysis is based very substantially on work undertaken in Britain and America. Of the 20 most cited authors, 16 are British, three are American and one is an Anglo-Canadian.

Two major developments receive relatively little attention. One is the expansion of interests in global tectonics and neotectonics since the mid-1960s, which has transformed our comprehension of many Earth surface features (including deltas, coral reefs, raised beaches, erosion rates, rift valleys, mountains, and volcanoes). Plate tectonics has also radically altered many of our background thought processes with regard to appropriate time spans for investigation and to notions of stability; and it has given biogeography a new momentum and a new theory. The other major development has been the increased concern with extraterrestrial matters caused by the space programme, with such notable work as that of Victor Baker on Mars and of Ronald Greeley and others on aeolian (wind-based) phenomena on the planets.

A further theme that needs to be explored in assessing the development of physical geography is the role of institutions, for much scholarship is by necessity now constrained or facilitated by groups rather than by individuals. In Britain, for example, the Natural Environment Research Council has for several decades played a central role in funding physical geography and directing research along those channels that it has perceived to be important. Similarly, the encouragement of the Royal Geographical Society for overseas projects like Mulu, Karakoram, Kora and Wahiba, has enabled large numbers of scientists to extend their sights beyond the shores of our islands; and the establishment of the British Geomorphological Research Group in the early 1960s has provided a tremendous stimulus to the rapid expansion and strengthening of British geomorphology.

To write a book of this scope, covering most aspects of physical geography, is a tremendous task for one man. Clearly, it has required both a large amount of wide reading and a measure of selectivity. Inevitably, there are some gaps in coverage and the literature survey on which it is based is not fully international. Despite these limitations, the even-handed treatment of the development of physical geography will enable undergraduates to place the individual components of their studies into a wider context.

Andrew Goudie

Professor Goudie is head of the department of geography at the University of Oxford, a fellow of Hertford College and honorary secretary of the Royal Geographical Society.

EDWARD ARNOLD

Environment and Health

A. J. COWLAND and P. COOPER

"The strength of this book lies in its implicit recognition of the realities of the current scene, which is to be expected from senior practitioners, one a senior community physician who specializes in the epidemiology of the environment, and the other a principal environmental health officer."

The British Medical Journal

ISBN 0 7131 2895 0 paper 312 pages £8.75 net

Resource Economics

G. A. NORTON

An introductory text for readers with no previous training in economics which outlines the basic concepts of economics and discusses their application to problems such as pollution, non-renewable resource depletion, renewable resource management and environmental impact analysis.

ISBN 0 7131 3494 1 paper 208 pages £7.95 net

Energy Resources

Second Edition

J. T. MCMULLAN, R. MORGAN and R. B. MURRAY

"It fills a major gap in our energy literature; until now there has been no comparable work covering the whole subject of the world's fuel resources... well written and easy to read."

Journal of Institution of Nuclear Engineers

(Review of the first edition)

ISBN 0 7131 3486 0 paper 208 pages £6.75 net

An Introduction to Rural Geography

A. W. GILG

This text provides a unifying focus, which introduces undergraduates to the disparate fields of study now sheltering under the "rural umbrella". Examples and case studies are taken largely from the British Isles, North America and Western Europe.

ISBN 0 7131 6430 1 paper 224 pages £7.95 net

The Ecology of Natural Resources

Second Edition

I. G. SIMMONS

"It is to be welcomed as an excellent introduction to some aspects of ecology, the link between ecology and resource systems and the general concepts of resource management... an impressive and valuable text which will surely command widespread use as a basic text."

International Journal of Environmental Studies

ISBN 0 7131 6328 3 paper 448 pages £9.95 net



Edward Arnold

41 Bedford Square, London, WC1B 3DQ

BRITAIN FROM SPACE

An Atlas of Landsat Images

R.K. Bullard and R.W. Dixon-Gough,
Map Services

BRITAIN FROM SPACE is one of the most exciting atlas productions of recent years. It is the first time that the systematic coverage of a large area, or continent, using satellite images, has been achieved. The great advantage of this type of atlas is the very nature of satellite imagery which contains far more detail, more accurately, than a comparable map of similar scale. The satellite imagery contains all the information that can be sensed on or near the Earth's surface and therefore more information is available to the reader.

128 pages, four colour throughout. Paper: 115 g. glossy; A4, 297 x 210mm. Hard case sewn with printed four colour cover. ISBN: 0 85066 277 X £12.50 Publication: June 1985



TAYLOR & FRANCIS LTD Rankine Road, Basingstoke, Hants RG24 0PR

BRITAIN FROM SPACE



An atlas of Landsat images

R. K. BULLARD and R. W. DIXON-GOUGH

Map Services

ISBN 0 85066 277 X

£12.50

Publication: June 1985

BOOKS

ENVIRONMENTAL SCIENCES

Rock origins

Magnas and Magmatic Rocks: an Introduction to Igneous Petrology by Eric A. K. Middlemost
Longman, £13.95
ISBN 0 582 30080 0

The Field Description of Metamorphic Rocks by Norman Fry
Geological Society of London in association with Open University Press, £6.50
ISBN 0 335 10037 6

The Field Description of Igneous Rocks by Richard S. Thorpe and Geoff C. Brown
Geological Society of London in association with Open University Press, £6.50
ISBN 0 335 10040 6

Petrology of Igneous and Metamorphic Rocks (second edition) by Donald W. Hyndman
McGraw-Hill, £38.95
ISBN 0 07 031658 9

The rocks which make up the outer layers of the Earth contain a wealth of information about geological processes. They may have formed in the recent past or thousands of millions of years ago - on the surface of the Earth or deep inside it. The knowledge and skills required to extract this information form the branch of the Earth sciences known as petrology.

The processes responsible for the formation of sedimentary rocks are

familiar to most people. Weathering and erosion in mountainous areas, the transport of eroded debris by rivers, wind and ice, and its final deposition in the sea are parts of common knowledge if not everyday experience. Yet despite their apparent simplicity, sedimentary rocks and the basins in which they are deposited are highly complex systems which must be understood in order for us to exploit efficiently the deposits of coal and oil they contain. Indeed, hydrocarbon exploration and extraction have provided much of the motivation and resources which have built "soft-rock" petrology into a major branch of the Earth sciences.

By contrast, the processes involved in the formation of igneous and metamorphic rocks are mostly outside our direct experience. We have all seen spectacular films of volcanoes erupting, but no one knows for certain where the lava (called magma while underground) comes from or how it forms. We may know that mountain belts are made of sedimentary rocks which have been squeezed, deformed and recrystallized, but the forces involved and the timescale on which they operate are beyond our comprehension. Although igneous and metamorphic rocks have their share of economic mineral deposits (diamonds and some metal ores, for example), the exploitation of these resources is not so dependent on a knowledge of the origin of their "hard-rock" hosts as hydrocarbon exploration and extraction is on an understanding of the origin of soft rocks. Consequently, research on the composition and origin of igneous and metamorphic rocks (hard-rock petrology) has remained very largely in the academic world.

Thirty years ago, hard-rock petrology was very much a descriptive subject (petrography). Processes were a matter for speculation, and very few attempts were made to quantify them. In the 1960s, however, two major developments revolutionized the Earth sciences and transformed petrology into the respectable exact science it is today. First, the establishment of

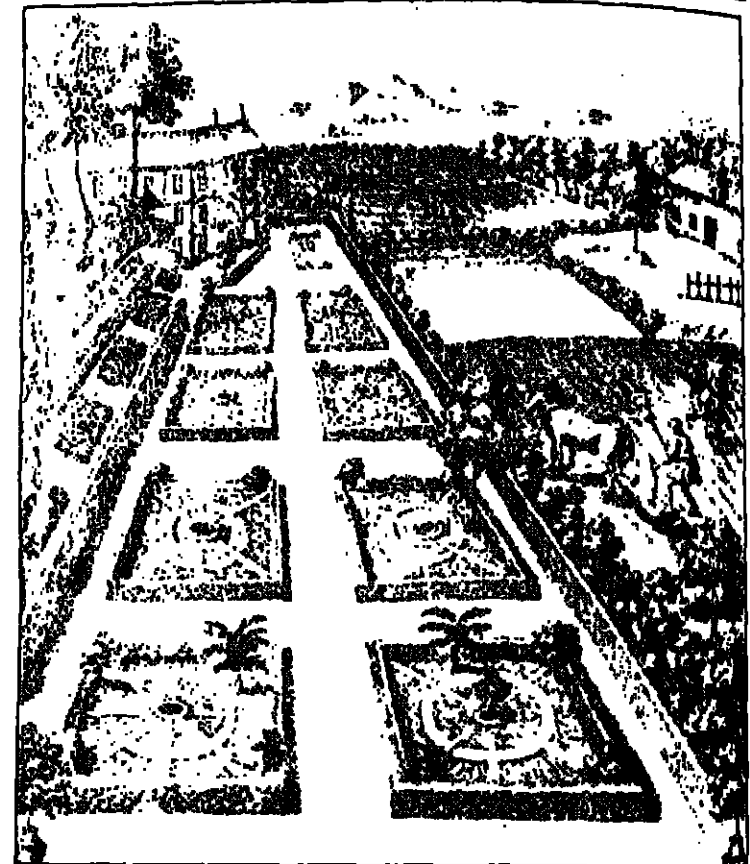
plate tectonic theory provided a framework for the study of igneous and metamorphic rocks and a unifying explanation for their origins. Igneous rocks are mostly formed by melting of the Earth's mantle at the places where plates are created and destroyed, sedimentary rocks being scraped off the ocean floor and crumpled into mountain belts in areas where one plate is consumed beneath another. The resulting heat and pressure transforms soft sediments into hard crystalline metamorphic rocks. Heat-flow measurements and theoretical studies of solid-state convection within the Earth's mantle have led to an understanding, still far from complete, of the driving forces involved.

Second, technological advances have made it possible to quantify igneous and metamorphic processes. For example, high-pressure experiments can now simulate conditions deep within the Earth. The high precision analysis of igneous rock samples for trace elements allows accurate modelling of melting processes within the mantle, and measurement of isotopic ratios precise to a few parts in a million, are now routine and not only allow the ages of rocks to be determined but can also be used to trace the movement of materials through the Earth.

Today the subject is advancing so rapidly that it is virtually impossible for anyone to keep abreast of all the important developments reported in the petrological literature. Researchers in one field are frequently unaware of advances in another, and the whole subject must seem bewildering to students. Regrettably, the need for specialization in research has bred a generation of petrologists who are forced to spend more and more time with equipment and equations and less and less time looking at rocks. It is particularly gratifying, therefore, to note the publication of several textbooks devoted to the study of rocks.

One of these, Eric Middlemost's book, neatly bridges the gap between traditional petrography and modern quantitative petrology. The first two chapters summarize the general principles involved in the generation and evolution of magmas on Earth and on the other planets and the moon. Middlemost then leads the reader gently through the complexities of rock classifications and puts each rock association into a global perspective. Separate chapters define each major association (granites and granitic rocks, for example), review its historical background, provide a concise treatment of textural and compositional characteristics, and discuss recent ideas on its origin and evolution.

For its size (266 pages), the book is remarkably comprehensive and well referenced. The text is concise and yet very readable. Middlemost's enthusiasm and thorough knowledge of igneous petrology coming through clearly. Though aimed at undergraduates - for whom it is ideally suited - it



Timothy Nourse's *Campania Poetica* of 1700, from the paperback edition of Christopher Thatcher's *The History of Gardens* (Croom Helm, £13.95).

should also provide research students and professional petrologists with a very useful and stimulating account of the subject. I can recommend the book highly to anyone with an interest in igneous rocks.

Despite the move towards specialization, most petrologists still spend some of their time studying rocks in the field, as a sound knowledge of the relationship between rock units is a frequent prerequisite for successful laboratory studies. Indeed, as the skills required in identifying, describing and interpreting rocks in the field will always be essential in geology, their acquisition occupies a large part of university degree courses. The Geological Society of London has recently published an excellent series of handbooks designed primarily to help students acquire these skills. Two of those handbooks deal with hard-rock geology.

Both books contain basic information on metamorphic and igneous rock types and their component minerals and provide tables to help with identification. More importantly, however, they show students how to record useful information in their field notebooks - a surprisingly difficult skill to learn. Both books are pocket-sized and well illustrated with clear line

drawings and photographs. Students embarking on their independent field projects will find these handbooks invaluable.

McGraw-Hill describes Donald Hyndman's book as "the long-awaited revision of the field's classic text", but if anyone has waited a long time for it, he or she is likely to be disappointed. The first edition was virtually unknown in Britain and had only limited success in the United States, and the second is not likely to fare much better. Part of the problem is that the author tries to cover too much ground. Although his book is crammed with information and ends with over 80 pages of references, its rambling style makes it very difficult to use. Theories, sometimes contradictory, are often listed without any attempt to arrive at a consensus view.

Intended for undergraduates and postgraduates, the latter could, with perseverance, get a lot out of the book. But with so many better and less expensive petrology texts already available, Hyndman's second edition seems destined to follow his first into obscurity.

Godfrey Fitton

Godfrey Fitton is lecturer in geology at the University of Edinburgh.

Voyage to Neptune

Rings discovered from Galileo to Voyager
by James Elliot and Richard Kerr
MIT Press, £17.50
ISBN 0 262 05031 5

There is a strong tradition in science that textbooks and papers destined for publication in journals, should be unemotional and presented in a style that minimizes the chance of the reader appreciating any of the excitement felt by the author in carrying out the work involved. The same seems to be true of most historical surveys of scientific topics, for in these the author is usually too far removed from a sense of personal involvement. How refreshing, then, to read the first chapter of *Rings*, which includes a transcript of the conversations between the members of a scientific team, one of whom is a co-author of the book, as they see plotted out in real time on a chart recorder the evidence for the presence of a series of rings around the planet Uranus.

The event, which took place in 1977, represented the first discovery of a planetary ring system since the early part of the 17th century. Then Cassini observed the strange appearance of Saturn, which was eventually interpreted by Huygens as being due to the presence of a ring system around the

planet, consisting of enormous numbers of small particles, each in a separate orbit around the parent body. The scientific community did not have as long to wait for the next ring discovery. Indeed, even before the Uranus ring was found, data obtained from two Pioneer spacecraft scanning Jupiter in 1973 and 1974, had suggested that a ring of some sort might be present. Although the evidence was obscure and not widely appreciated (it consisted mainly of unusual reductions in the numbers of charged particles detected near the planet), this was enough to ensure that a search was made using the camera system of Voyager I, which encountered Jupiter in early 1979. Indeed, the Jupiter ring was duly observed, to be imaged in more detail a few months later by Voyager II.

By this time, it was clear that there were significant differences between the three ring systems. That of Saturn had been known from the earliest times to be complex, with relatively wide rings; that of Uranus consisted of several narrow rings; and that of Jupiter was something of a hybrid presented itself for scientists to look at the Saturn rings in more detail than is ever possible from Earth: one of the Pioneer spacecraft had had earlier visited Jupiter was due to encounter Saturn in late 1979. That probe served to confirm the variations in ring brightness seen from Earth; it also discovered one new, narrow ring. Its main task, however, was in confirming that the two Voyager spacecraft, to arrive at Saturn in 1980 and 1981, would be

able to survive collisions with small particles very close to the main ring. This they duly did, providing so much data about the fine structure of Saturn's rings that much of the analysis is continuing.

As Elliot and Kerr present the details of these events in roughly chronological order, and from the point of view of their personal involvement, their book is not (and does not claim to be) a balanced and thorough historical account; indeed, my recollections of opinions on the structure of the Saturn ring system current in 1968 differ somewhat from those presented. However, the challenge and excitement are captured; and this is what matters.

Most of the book is a straightforward exposition of new facts, requiring no detailed scientific background on the part of the reader. Later chapters present some more technical aspects of current ideas on how rings form and evolve, for these have a bearing on the likelihood that Neptune, which is similar in size to Uranus, will have a ring system. The chances of detecting that system, however, do not look good at the moment. Judgement must be reserved until Voyager II reaches the planet in 1989, assuming that the spacecraft survives its imminent encounter with Uranus in January of next year.

Lionel Wilson

Lionel Wilson is senior lecturer in environmental science at the University of Lancaster.

BOOKS

ENVIRONMENTAL SCIENCES

Minute fossils

Elements of Micropaleontology: microfossils - their geological and palaeobiological applications by Gerard Bignot
Graham & Trotman, £25.00 and £9.95
ISBN 0 86010 485 0 and 490 7

Micropaleontology is the study of minute fossils which are so small, even when adult, that they require special means of collection, abstraction from the rocks, and examination. As these microfossils cannot normally be seen in rocks outcropping in the field - except with a lens - their identification requires the use of specialized microscopes. They include the shells of unicellular and multicellular microorganisms such as foraminifera and ostracods; and the subject is usually extended to cover the scattered remains of larger organisms otherwise normally found as fossils, such as the spores and pollen of plants (palynology) and the very small hard parts of nanofossils such as cocco-

lithophorids and diatoms (nanopalaeontology).

Dr Bignot accepts the broad definition of micropaleontology in his book and points out that coherence is given to the subject by its strong links with industry, which now employs most of the 12,000 micropaleontologists active worldwide. The reason for this success is that microfossils occur in nearly all sedimentary rocks, some limestones being almost wholly made up of them; and they far outnumber macrofossils, the traditional means of relative age dating (biostratigraphy) and of determining environment of deposition. As they also have the advantage that they can be obtained undamaged from borehole drill chipplings, they are particularly useful in subsurface studies, especially in the search for hydrocarbons in sedimentary basins.

The first two chapters provide an historical account of the rise and purpose of micropaleontology, a resume of methods of collection and preparation, and of the principles of microscopy - with a description of the capabilities and use of the binocular stereomicroscope and the scanning electron microscope. Techniques are shown to vary with the size and chemical nature of the microfossils studied. These introductory chapters are followed by eight chapters (half the book) giving summary accounts of the main groups of microfossils and nanofossils. Each chapter covers the biology and ecology of the living forms, if the group is extant, and includes information on the salient morphological features, a systematic

survey, and the geological and palaeoecological record.

The last part of the book covers the geological and palaeoecological applications of micropaleontology, commencing with the distinctive features of fossilization and particular problems of corrosion (especially in deep-sea waters undersaturated in carbonates), the destructive activity of living organisms, transport, and reworking. An interesting chapter then follows on the use of microfossils in palaeogeographical reconstruction, the species concept and modes of speciation, illustrated by foraminiferal evolutionary lineages showing that both gradual transformation and branching occurs.

The final chapters cover the importance of microfossils as rock formers, their use as indicators of hydrocarbons, as biostratigraphical index fossils or "chronometers", and as palaeogeographical indicators. The particular importance of planktonic microfossils as indicators of climate change and for dating episodes of seafloor spreading is also emphasized.

There is no doubt that Bignot has succeeded in his attempt to provide a panorama of micropaleontology. His book will be most useful in both undergraduate and postgraduate courses.

J. R. Haynes

J. R. Haynes is professor of geology at the University College of Wales, Aberystwyth.



"Gorillas were portrayed as fierce animals by most 19th-century writers", an illustration from Clare Lloyd's *The Travelling Naturalists* (Croom Helm, £13.95).

Ocean currents

Elements of Dynamic Oceanography by David Tolmazin
Allen & Unwin, £25.00 and £11.95
ISBN 0 04 551070 9 and 551071 7

The introduction of dynamical oceanography to undergraduates poses a number of problems. The subject is based firmly on the concepts of rotating fluid dynamics, which can only be satisfactorily covered in the final year of an undergraduate course or at postgraduate level. But for the general reader and the non-mathematical student, certain aspects must inevitably remain in mathematical obscurity, and such people must be content with a less rewarding description of the treatment. It is refreshing, therefore, that David Tolmazin's book attempts, very successfully, to take the reader on a voyage of discovery through the fascinating science of dynamical oceanography without recourse to partial differential equations.

Tolmazin's view is that many of the modern theories of ocean circulation can be explained using simple axioms, general physical laws, and conceptual models. Although his approach is necessarily descriptive, he chooses to describe mechanisms and ideas rather than present a geographical treatment of the subject. Using this technique, he is able to bring the reader rather quickly to the heart of dynamical oceanography.

After introducing the concept of

Here, however, despite lucid reasoning, the general reader would have to make quite an effort to understand fully the ideas presented. Many of the results of the reasoning are counter-intuitive, because of the effect of the Earth's rotation on fluid motion.

A final chapter on the place of the ocean in the climatic system offers some respite from the dynamical arguments. Possible mechanisms in which components of the system may interact to produce variations in climate are introduced through diagrams, which give a qualitative idea of mechanisms without trying to verify the ideas with data. In an interesting aside to the general direction of the book, a final section discusses some of the global engineering schemes (mainly Soviet) put forward to alter ocean circulation and moderate climate in polar latitudes.

Although this book is a very successful attempt to clarify the central concepts and ideas of modern dynamical oceanography, it is not a comprehensive treatment of the subject: ideas are not discussed in any detail and waves are given only a very brief mention. However, as it is more a personal view of how the ocean works and how it interacts with the atmosphere, it is an excellent book both for non-specialist readers and for undergraduates and postgraduates. There is also an extensive bibliography, of which a large component is Soviet.

Nell Wells

Nell Wells is lecturer in oceanography at the University of Southampton.

Wiley

MANUAL OF MINERALOGY, 20th Edition

by C. Klein, University of New Mexico and C. S. Harbutt Jr., Harvard University
This comprehensive and up-to-date, revised introductory text presents a balanced treatment of basic concepts in mineralogy and descriptive discussions of about 2200 of the most common minerals. New features in this 20th Edition include a more simplified approach to crystal morphology, a chapter on internal order and structure, a new chapter on gem minerals with four colour plates, and revisions throughout the text which reflect a more quantitative approach.
0471 80589 7 608pp March '85 (cloth) £43 45
0471 82182 9 608pp March '85 (WBE) £20 25

ECOLOGY OF NATURAL RESOURCES

by F. Ramade, Laboratoire de Zoologie et d'Ecologie, Université de Paris-Sud (Orsay)
Discusses the application of ecological principles, tools and data to the conservation and management of the biosphere. It provides an analysis of the ecological implications of man's use of his environment and an assessment of the strategies needed to conserve and optimise natural resources in the future. The author's aim is to provide a general framework for the rational use of natural resources to achieve the goals of the world conservation strategy of the International Union for the Conservation of Nature and its Resources (IUCN).
0471 80104 0 246pp December '84 (cloth) £34 00
0471 80625 5 246pp December '84 (paper) £14 95

MINERAL RESOURCES AND ENGINEERING GEOLOGY

by A. Sakai, S. Ishihara and Y. Seki
Covering the important field of applied geology, this book brings together two areas which are normally examined independently, economic (or ore) geology and engineering geology. The first half of the volume presents a geological and geochemical summary of ore forming processes covering both metallic and fossil fuel resources with particular emphasis on their uses to the evolution of the Earth's crust. The second part of the book provides a concise summary of basic principles and approaches to the problems of modern engineering geology.
Series: Texts in Earth Sciences
0471 10538 8 312pp September '85 £27.95

EXERCISES IN PHYSICAL GEOGRAPHY, 3rd Edition

by A. N. Strahler and A. H. Strahler
The exercises in this manual serve two basic purposes. One is to help you to develop technical skills in handling the data of physical geography, the other is to develop your ability to interpret the data of physical geography.
0471 80046 5 328pp December '84 (paper) £14.95

For further information please write to the Textbook Manager - inspection copies of certain titles are available

John Wiley & Sons Limited
Ratons Lane, Chichester, Sussex PO19 1UD, England

The Global Possible

Resources, Development, and the New Century

edited by Robert Repetto

Can the world reverse current deterioration of resources and the environment, while at the same time promoting a better quality of life for all? Experts in various areas of environmental research and policy here offer a broad overview of the state of the world's threatened resources and, drawing on evidence from recent experiences in many countries, propose realistic and politically practical corrective measures.

A World Resources Institute Book

To be published in December

Cloth £45.00 Paper £13.95

YALE UNIVERSITY PRESS

13 Bedford Square, London WC1B 3JF

Earth Sciences from Chapman and Hall

MOUNT ETNA

The anatomy of a volcano
D. K. Chester, A. M. Duncan, J. E. Guest
and C. R. J. Kilburn
An integrated up-to-date study of pure and applied volcanological research, which also demonstrates the important influence which studies on Mount Etna have had on the development of volcanological thought.
October 1985 c. 352pp Illustrated HB 0 412 23800 X £30.00

REMOTE SENSING OF ICE AND SNOW

Dorothy Hall and Jaroslav Martinec
This book describes the utility of remote sensing for identifying, mapping and analysing surface and subsurface properties of worldwide ice and snow features.
November 1985 c. 206pp: 12pp of colour plates HB 0 412 23910 9 £25.00

PRINCIPLES & APPLICATIONS OF HYDROCHEMISTRY

Erik Eriksson
Professor Eriksson's book follows the natural path of water in nature by describing the changes that occur as water moves from rain through groundwater into streams, rivers and lakes.
October 1985 172pp HB 0 412 23860 X £30.75

GEOLOGY AND SOCIETY

D. R. Coates
How is mankind altering the land-water ecosystem? How can the degradation and destruction of natural systems be minimized? These crucial questions are dealt with in this comprehensive and practical overview of environmental geology.
September 1985 408pp HB 0 412 23104 X £30.00
PB 0 412 23170 1 £12.95

Third Edition ANCIENT SEDIMENTARY ENVIRONMENTS

R. C. Selley
This book shows how to discover the depositional environment of sedimentary rocks, and how to use this knowledge to locate and produce mineral wealth from under the surface of the earth.
October 1985 346pp Illustrated HB 0 412 23730 1 £27.50
PB 0 412 23730 6 £8.95

CHAPMAN AND HALL

11 New Fetter Lane, London EC4P 4EE

Allen & Unwin ENVIRONMENTAL SCIENCE

Environmental Systems

An Introductory Text

I. D. White, D. N. Mottershead and S. J. Harrison

"Well-produced and illustrated... the book is probably the most successful elementary text available at this time."
Peter Young - T.H.E.S.
1984 Hardback £30.00 Paperback £12.95

Floods and Drainage

British Policies for Hazard Reduction, Agricultural Improvement and Wetland Conservation

Edmund C. Penning-Rowsell, Dennis J. Parker and Donald M. Harding

December 1985 Hardback £25.00

The Risks and Hazards Series: 2

Environmental Chemistry

Peter O'Neill

December 1985 Hardback £20.00 Paperback £8.95

Forthcoming:-

Environmental Magnetism

Roy Thompson and Frank Oldfield

March 1986 Hardback £24.95

Freshwater Studies

John Gee

January 1986 Paperback £4.50 NN

Allen & Unwin (Publishers) Ltd
PO Box 18, Park Lane
Hemel Hempstead, Herts HP2 4TE

Allen & Unwin

NEW FROM LONGMAN

Mineral Resources and Their Management

John Blunden
Themes in Resource Management Series
 This book presents the principles of mineral resource management in the broadest sense, covering both metallic and non-metallic minerals and their extraction, processing, distribution, and use. It also covers the environmental problems and the management of mineral resources. The book is written for students of geology, mining, and environmental science. It is illustrated with numerous photographs and diagrams. ISBN 0 582 30058 4 £8.95 net

The Planning and Management of Environmentally Sensitive Areas

Paul F. Eagles
Themes in Resource Management Series
 This book is the first to present an integrated introduction to the planning and management of environmentally sensitive areas. It covers the principles of planning and management, and provides a series of case studies from Britain, Japan, Canada, and the USA. ISBN 0 582 30074 6 £7.95 net

Fire and Ice The Nuclear Winter

Michael Rowan-Robinson
 Only recently have scientists realised that a full-scale nuclear war could plunge the earth into a sudden prolonged winter, one that would have catastrophic consequences for life on earth. The nuclear winter would be caused by the massive fires and smoke that would be set off by the nuclear war. The book examines the causes and consequences of nuclear winter, and the role of the nuclear winter in the development of modern farming systems. ISBN 0 582 44498 8 £2.95 net

Available from booksellers. For further information on these and related titles, write to Clive Weatherley, Longman Group Ltd., Longman House, Burnt Mill, Harlow, Essex CM20 2JF.

Longman

THE SPECIAL BOOK NUMBERS FOR OCTOBER

OCTOBER 11 - HISTORY
 OCTOBER 18 - MATHS
 AND PHYSICS
 OCTOBER 25 - POLITICS

New books from Hutchinson

Practical Ecology for Geography and Biology Students
 Survey, mapping and data analysis
 D. Giberson, P. Kent and E. F. Pyatt
 A book to help students build up their practical ecological skills. It covers the following areas:
 * methods of data collection * techniques of surveying and mapping * sources of information and analysis * interpreting data * basic ecological principles
 Published 1985 £12.95 cased 09 161320 5 £6.50 paper 09 161321 3
 Agricultural Development and Nutrition
 A model study and Philip Payne (eds)
 The Nutrition Policy Unit of the London School of Hygiene and Tropical Medicine draw upon recent evidence from South Asia to expose the multitude of factors - social, political, environmental and economic - which can limit people's access to food and their ability to assimilate its nutrients. Supported by the FAO and UNICEF
 Published 1985 £11.95 cased 09 161330 2 £5.95 paper 09 161331 0
 Order your inspection copies now!
 TO: Katherine Gascan, Hutchinson Education, Brookmount House, 62/64 Chandos Place, London WC2N 4NW
 Please send me inspection copies of the books I have ticked below as I wish to consider recommending them to my students:
 * Practical Ecology (09 161321 3) * Indigenous Agricultural Revolution (09 161321 3) * Agricultural Development and Nutrition (09 161331 0)
 Name _____ Dept _____
 University/College _____ Address _____
 Signed _____
 Those books can also be purchased at all good bookshops

BOOKS

ENVIRONMENTAL SCIENCES

Fertile ground

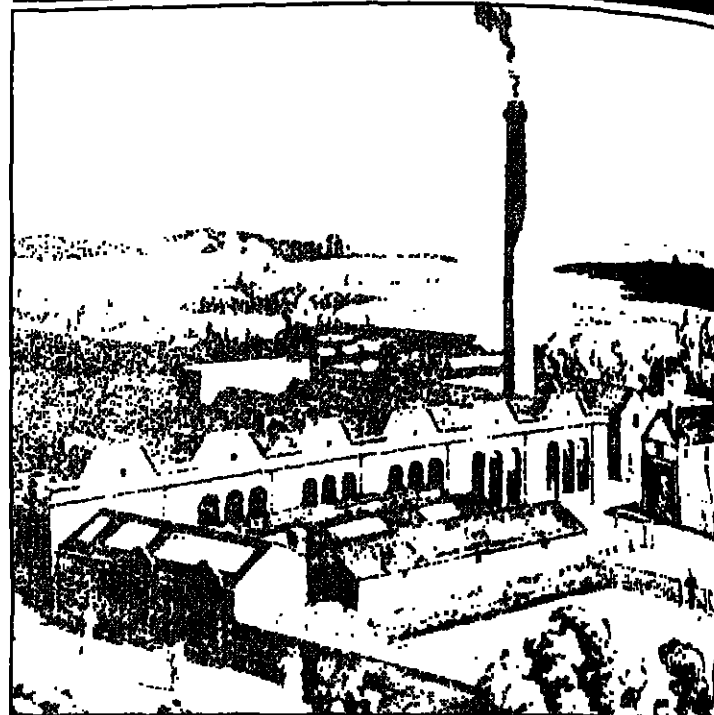
Agriculture and Environment: the physical geography of temperate agricultural systems
 by David J. Briggs and Frank M. Courtney
 Longman, £30.00
 ISBN 0 582 30000 2

Because it examines in detail the restraints imposed on agricultural practice and productivity by the natural environment, and because it discusses the impacts of modern farming methods on the countryside, *Agriculture and Environment* represents a major addition to the literature. As its authors approach the subject from the point of view of the physical geographer, the book complements the more widely publicized perspectives of the ecologist (for example, Bryn Kenner's *Countryside Conservation*, 1983) and the social scientist (for example, John Bowers and Paul Cheshire's *Agriculture, the Countryside and Land Use: an economic critique*, 1983).

The book is divided into four sections. In the first, the authors introduce the environment in terms of its energy, nutrient and hydrological cycles, and provide a short historical introduction to the development of modern farming systems. In the second, they examine four key areas of agricultural practice - tillage, drainage and irrigation, fertilizers and manures, and pest control and crop protection. The kinds of issue discussed include the effect of soil compaction on crop yields, the design of soil drainage systems, the advantages of organic manures over inorganic fertilizers, and the persistence and specificity of pesticides.

In the third section, the authors cover those environmental relations deemed critical to the management of grassland and grazing systems and arable farm systems in temperate agriculture. And in the final section they assess the impacts of modern agriculture, paying particular attention to the hydrological cycle and reductions in plant and animal species, before evaluating change within three ecological systems: lowlands, uplands and wetlands. A final chapter takes a broader view of environmental change in farmed areas, concluding with some brief comments on agricultural policies.

By any standards, the authors present an impressive synthesis of the natural science literature, even if the book's subtitle does not make it clear that the contents largely relate to Britain and not to temperate farming systems generally. The book consists of a literature review of remarkable depth, each chapter containing huge amounts of information. In places, however, there is too much detail of a technical kind relating to husbandry matters, although the text never becomes indigestible. Indeed, most read-



Cadbury's purpose-built chocolate factory at Bournville, completed in 1879, from Edgar Jones's *Industrial Architecture in Britain, 1750-1939* (Batsford, £25.00).

ers will see the book as a source of reference, as its contents cannot be absorbed at one sitting.

The numerous diagrams are clear and helpful and the text is supported by an enormous bibliography, although even here the authors have their blind spots. In the discussion of energy flows, for example, why is no mention made of Gerald Leach's *Energy and Food Production* (1976), and D. and M. Pimental's *Food, Energy and Society* (1979), or even more surprisingly, A. N. Duckham's *Agricultural Synthesis: the farming year*, published 22 years ago, which probably parallels most closely the authors' own interests and approach?

Sensibly, the authors make no claim to cover all aspects of the debate on the relations between farming practice and the environment, sticking very largely to their particular areas of expertise. On the other hand, they are aware of the socio-economic context in which

making, in which geologists should participate if the cross-section is to be of use to them, they must have a general understanding of the routines used. Kearey and Brooks's book explains these routines quite well, although I would have appreciated a few more examples. There is also a great diversity of applications of geophysics in civil, marine and geothermal engineering, mining, water supply, waste disposal and archaeology. Kearey and Brooks provide a good balance, with plenty of information about the geophysics needed by the oil prospectors, complemented by a sound treatment of the principles of gravitational, magnetic, electrical and electromagnetic methods of exploration. The increasing use of computer inversion routines in the interpretation of force fields is clearly portrayed with examples.

The book is well written and clearly illustrated, the qualitative messages being delivered without the distraction of complex mathematics. Consequently, there is too little fodder for the geophysicist, except as the main market for the book will be among students in geology, engineering and archaeology. For them, although it offers excellent value for money, it does not in itself represent a complete course. Many more examples and problem exercises must be presented, so that students get a better idea of what the methods can achieve.

This is important, because mistaken impressions of the value of the methods abound, especially among civil engineers. Although Kearey and Brooks include an interesting chapter of case-histories to show how well the techniques work in practice, this aspect is underemphasized in their text. However, this is a minor quibble about a book that has few serious rivals among introductory texts on applied geophysics.

Jeremy Hall
 Jeremy Hall is senior lecturer in geology at the University of Glasgow.

A second edition of Nigel Pears's *Basic Biogeography* has been published by Longman at £8.95.

Digging deep

An Introduction to Geophysical Exploration
 by P. Kearey and M. Brooks
 Blackwell Scientific, £11.80
 ISBN 0 632 01049 5

Although the Earth's hidden treasures may be released by digging, discovery is largely a geophysical exercise, with a variety of techniques being used to detect the disposition and nature of buried rocks from surface measurements. The choice of technique depends on the target's possessing some distinctive physical property. Thus, a dense rock among lighter may be revealed by its local effect on the force of gravity.

As the target size and position may not always be uniquely determinable from the data, it falls to the geologist to limit the range of geophysically possible solutions to those that are geologically plausible. Hence, geophysicists must work in close liaison with geologists, and also possibly with engineers, archaeologists or other experts. As they in turn need to have some feeling for geophysics and the likely effectiveness of its use, this book caters for them, by providing an up-to-date review of the principles of the main techniques in use and of their areas of application.

Geophysics is mainly used in the search for hydrocarbons. Seismological techniques of echo-sounding have become very sophisticated; multi-channel digital recordings can be made at sea or on land; and data can be processed on computers using advanced signal detection and improvement algorithms. The resolution of the final seismic cross-section is now good enough to enable geologists to infer the environments in which rocks were laid down and thus to evaluate prospectivity directly. This new area of seismic stratigraphy has grown during the past 15 years by the gradual refinement of the geophysical technique. As processing involves decision-

NOTICE BOARD

This week's "Noticeboard" is given over to a calendar of some of the events of academic interest taking place during the autumn term. It is hoped to do this each quarter from now on and copy for the next edition should be submitted by mid-

November for the period January to March 1986. The introduction of this new feature is not intended to replace our usual week-to-week "Noticeboard" and arts page listings and these should still be submitted in the normal way.

October

October 1-22: an exhibition of the manuscripts, books and illustrations of the poet and translator Charles Tomlinson at the University of Keele Library. This exhibition coincides with a recording by Charles Tomlinson of his complete works for the University of Keele archives.

October 6: "Introduction to Psychoanalytic Psychology" - workshop led by Jochan Lund and sponsored by the Association for Humanistic Psychology in Britain. For details and booking information on forthcoming lectures and workshops: Mary Fee on 01-264411 x293 or AHP (B), 62 Uxbridge, London N12 7LG or 01-345 6515.

October 7 (and weekly): "Drug Abuse in the '90s" - by Dr M. W. Elvies, first of Aston University department of pharmaceutical sciences' research seminar programme. For full details of this and subsequent titles: Dr Michael Toole at the department, Costa Green, Birmingham B4 7ET or 021-359 3611.

October 8: "The Divergence of the Twentieth Century: Philosophy and the Philosophy of Science" - lecture by Lord Quinlan, University of Warwick Arts Centre conference room, 1.30pm. Details: 0203 24011 x132 or 2320.

October 10: "Chemistry of Brain Dysfunction" - Royal Society of Chemistry sponsored lecture by Professor A. R. Davison. To be given at the University of Aston at 4.30pm. Details: Dr G. B. Briscoe on 021-359 3611 x4749.

October 10: "The Enduring City: a perspective on decline" - lecture by Professor Brian Robinson sponsored by the Association of Learned Societies in the Social Sciences and held at the Royal Geographical Society at 5.30pm. Details: Dr Vicky Randall on 01-486 5811 x417.

October 17: "Seeing by Electricity" - Institution of Electrical Engineers chairman's address by Professor Russell Burns of Trent Polytechnic, 5.30pm at Savoy Place, London WC2. Details: Christina Duggan on 01-240 1871 x272.

October 18: "Open College Networks" - workshop sponsored by the Polytechnic Association for Continuing Education. To be held at Polytechnic of the South Bank. Details: Maggie Woodrow on 01-228 2015.

October 18: "Geometric Topology" - three afternoon sessions on the subject sponsored by the London Mathematical Society and held at Burlington House, Piccadilly. To be followed by a general meeting and, in late afternoon, by a paper on "Gromov-Hortz" of Coarsely Hyperbolic Groups. Details: Miss S. M. Oakes, Burlington House, Piccadilly, London W1V 0NL or 01-437 5377.

October 19: "Microorganisms and Symbolism" - third meeting in a series for teachers held by the University of Surrey

department of microbiology in collaboration with the Education Liaison Service. Details: Sheila Gammon, Department of Educational Studies, University of Surrey, Guildford GU2 5XH or 0483 571281 x559.

October 21: "Experimentation on Embryos" - lecture by Lady Warnock, University of Warwick, FME lounge at 7.25pm. Details: 0203 24011 x2205.

October 21: "Beneath the White Coat" seminar series on science and politics in the 1980s organized by the British Society for Social Responsibility in Science. Duncan Campbell on "Myths and Realities of Surveillance" at Adams Arms, Conway Street, London W1. For details of this and subsequent meetings contact BSSRS on 01-607 9615.

October 23: "What Sort of Industrial Policy" - the fifth Shell International Lecture in the University of St Andrews, to be delivered by Sir Douglas Warr, former permanent secretary to HM Treasury. To be held in the Buchanan Lecture Theatre at 5.15pm.

October 23: "Helping students who feel the can't cope" - (third Joanna Palmer lecture at UMIST, Renold Building, 2.00pm. To be given by Rev David Evans, general secretary of Samaritans. Details: Tim Yates on 061-236 3311 x2722/3.

October 26: British Health and Safety Society Annual Conference. At Birmingham Medical Institute, 36 Harborne Road, Birmingham 15. Details: 021-359 3611 x4653.

October 31: "Survival in the 21st Century" - Maclaren Memorial lecture to be given by Sir Edwin Nixon CBE, chairman and chief executive of IBM. At Aston University, 6.30pm. Details: Mrs Linda Harland, Aston Management Centre, Costa Green B4 7ET or 021-359 3611 x5011.

October 31: "Maurice Dobb's Economics" - lecture by Professor A. K. Sen, University of

Warwick, Social Sciences Building, room SO11 at 4.30pm. Details: 0203 24011 x2951.

November

November 1: "Enterprising Women" - a two-day conference organized by the Scottish Enterprise Foundation on the subject of women in business and industry. To be held at the Burnbrae Hotel, Milngavie, Glasgow. Details: Margo Campbell or Mary Rose, Scottish Enterprise Foundation, University of Stirling, FK9 4LA or 0786 73171.

November 6: "Technology Based Training" - workshop sponsored by the Engineering Industry Training Board. Details: John Chubb and Brian Merison on 01-681 6031.

November 7 & 8: "Reliability Technology for Practising Engineers" - course series sponsored by the Safety and Reliability Society in collaboration with the University of Bradford. To be held at the Scarlebrick Hotel, Lord Street, Southport. Details: Secretary, Postgraduate School of Studies in Industrial Technology, University of Bradford, BD7 1DP or 0274 733466.

November 9 & 10: "Depression and Creativity" with Dr Dorothy Rowe. Annual Training and development conference of the Association of Humanistic Psychology Practitioners. To be held at College Hall, University of London, Malet Street, WC1 7HZ. Details: General Secretary AHP, 7 Jackson Tor Road, Mallock, Derbyshire DE4 3JS or 0629 4600.

November 9 & 10: "Problems of Post-Modernism" - conference on the work of Adorno and Benjamin; speakers include Jay Bernstein, Peter Dews, Terry Eagleton and Julian Roberts. Details: 0203 24011 x2953 or 2320.

November 19: "The Meaning



The Cornerhouse, Manchester's new film and exhibition centre, opened on October 3 with an exhibition entitled "Human Interest", representing fifty years of British art about people. Contrasting images included David Hockney's well-known 1961 canvas "We Two Boys Clinging Together" (right) and David Chadwick's striking "Girl in a Discotheque" (above). The exhibition runs until November 17.

of Literacy in Early Modern England" lecture by Mr Keith Thomas, University of Warwick, Arts Centre conference room at 5.30pm. Details: 0203 24011 x2709.

November 25: "The Concept of a Multi-Cultural Society" - lecture by Professor John Rex, University of Warwick, Arts Centre conference room at 5.15pm. Details: 0203 24011 x2714.

November 26 & 27: "Concepts of Corporate Financial Modelling" - department of management science, Imperial College, Exhibition Road, London SW7 2AZ. Details: Nigel Meade at this address.

November 26 & 27: "Alleged Health Hazards of Work on VDUs" - sponsored by

Humane Technology and to be held at London West Hotel, London SW6. Details: Noelle Fletcher on 0509 237428.

November 27: Lord Marshall, chairman of the Central Electricity Generating Board, is to deliver the second McKenzie Lecture at the University of Liverpool on the title "The Engineering Challenge of the Electricity Industry". Time and details: 051-705 6022.

November 28: "Bibliography and the Sociology of Texts" by D. F. McKenzie. The first in the inaugural series of Panizzi Lectures at the British Museum Lecture Theatre, Great Russell Street, London WC1 at 6pm.

November 30: "Astiride the A1 Corridor" - a look at transport problems in the East London

Assessment Study Area. To be held at the Polytechnic of North London. Details: 01-607 2789.

December

December 5 & 6: "Changing the Learning Climate" - sponsored by SCEDSIP and held at the City of Birmingham Polytechnic. Details: Diana Eastcott, Educational Development Unit, City of Birmingham Polytechnic, Perry Barr, B42 2SU or 021-356 6911.

December 8-13: "Pre-vocational education: managing a comprehensive provision" - a joint FEU/FESC conference to be held at the Further Education Staff College, Coombe Lodge, Bagdon, Bristol BS18 6RG. This address for details or telephone 0761 62503.

THE NUFFIELD FOUNDATION

Social Science Research Fellowships

These Fellowships are to enable social scientists on the staff of universities, polytechnics and colleges of higher education in the United Kingdom to pursue their research interests on a full-time basis, free from teaching and administrative commitments.

The awards will be for a minimum of one term and a maximum of a year. The Foundation will meet the research expenses of successful candidates, together with the cost to their institutions of replacement teaching during their leave of absence. The institutions are expected to pay the Fellows' salaries during the period of Fellowship and to administer the payments made by the Foundation.

Application forms and further information from: The Director, The Nuffield Foundation, Nuffield Lodge, Regent's Park, London NW1 4RS.

Closing date: 1 December 1985.

Publications

Sir Douglas Logan's *The Birth of a Pension Scheme*, an account of the universities superannuation system, has recently been published by Liverpool University Press. The 100-page book costs £9.50 and can be ordered direct from LUP, PO Box 147 Liverpool L69 3BX.

TV Take Up 1985-86 offers a detailed listing of television programmes for adults and children. Copies are available from regional IBA offices or from the association's headquarters 70 Brompton Road, London NW3.

Study While You Work is a guide to vocational courses in further education for 16-19-year-old employees and is published by the Northern

Ireland Council for Educational Research, price £2.50. Available direct from the authors: Rose McCartney, Robert McDowell and Colin McElroy at the NICER Research Unit, 52 Malpas Road, Belfast BT15 5BS.

Working Together: Towards an Integrated curriculum in the Study of a Further Education Unit report recently published. The main instance examined was BTCEC general, soon to be submitted under the CPVE rationalization. However, as chief officer Jack Mansell points out in his foreword, the findings have a wider applicability and relevance. Limited numbers of extra copies can be had from Publication Department, Department of Education and Science, Honeywell Lane, Cannon Park, Stammers, Middlesex HA7 1AZ.

12.40 Health and Disease. Alan Rickson, the Enigma Disease. (U205; prog 11)
 12.00 The Changing Countryside. Cropping the countryside. (U276; prog 3)

12.40 Health and Disease. Alan Rickson, the Enigma Disease. (U205; prog 11)
 RADIO 3 (VHF)
 6.55 The Romantic Poets. The romantic legacy. (A32; prog 6)
 * repeated programmes
 There will be no further OTV or radio broadcasts this week.

Open University viewing

Saturday October 5

8.05 Mathematical Models and Methods. Preparing for the exam. (M3720; prog 23)
 11.00 The Earth's Physical Resources. Water for a City. (M348; prog 9)
 11.05 Science Foundation course. Energy: doing the job. (S101; prog 3)
 11.10 Maths foundation course. The fundamental concepts of algebra. (M101; prog 30)
 12.15 Computing and Computers. The basic principles of computer science. (M225; prog 14)

Wednesday October 9

8.05 Mathematical Models and Methods. Preparing for the exam. (M3720; prog 23)
 11.00 The Earth's Physical Resources. Water for a City. (M348; prog 9)
 11.05 Science Foundation course. Energy: doing the job. (S101; prog 3)
 11.10 Maths foundation course. The fundamental concepts of algebra. (M101; prog 30)
 12.15 Computing and Computers. The basic principles of computer science. (M225; prog 14)

Thursday October 10

8.05 Mathematical Models and Methods. Preparing for the exam. (M3720; prog 23)
 11.00 The Earth's Physical Resources. Water for a City. (M348; prog 9)
 11.05 Science Foundation course. Energy: doing the job. (S101; prog 3)
 11.10 Maths foundation course. The fundamental concepts of algebra. (M101; prog 30)
 12.15 Computing and Computers. The basic principles of computer science. (M225; prog 14)

CLASSIFIED ADVERTISEMENTS

The Times Higher Education Supplement

to place advertisements write to or telephone:

The Advertisement Manager,
The Times Higher Education Supplement,
Priory House, St John's Lane, London EC1M 4BX.
Tel: 01-253 3000. Telex 264971

All advertisements published subject to the Terms and Conditions of Times Newspapers Ltd (available on request)

Rates:

Classified Display - £13.35 psc
Minimum size: 9cm x 1 col @ £120.15
Classified Lineage - £2.58 per line
Minimum 3 lines - @ £7.74
Box number - £2.00
Exclusive of V.A.T.

copy deadlines:

Classified Display:
Friday in the week prior to publication
Classified Lineage:
Monday 10.00 am in the week of publication

Appointments

Universities
Fellowships
Research and
Studentships
Polytechnics
Colleges of
Higher Education
Colleges with
Teacher Education
Colleges and
Institutes of Technology

Technical Colleges
Colleges of
Further Education
Colleges and
Departments of Art
Administration
Overseas
Adult Education
Librarians
General Vacancies
Industry and Commerce

Other classifications

Exhibitions
Awards
Conferences and Seminars
Courses

Personal
For Sale and Wanted
Holidays and
Accommodation

All box no. replies should be sent to THES at the above address

UNIVERSITY OF BRADFORD

Chair in Numerical Analysis

Applications are invited for the post of Professor of Numerical Analysis from 1 October, 1986 or some earlier date. The person appointed will have interests and experience in the application of numerical analysis to engineering and science problems and will provide academic leadership in the area, especially in research and post-graduate activities.

Further particulars can be obtained from the Registrar and Secretary, University of Bradford, Bradford, West Yorkshire, BD7 1DP.

Closing date for receipt of applications is Friday, 15th November, 1985.

THE CHINESE UNIVERSITY OF HONG KONG

Applications are invited for the following posts tenable from August 1986:

(1) Senior Lecturer/Lecturer in Psychology (ref: 45/508/2/85) - Applicants should have a Ph.D. degree in Psychology with specialization in Sensation and Perception. Specialization in Psychometrics will also be considered.

(2) Lecturer in Biology (ref: 45/509/2/85; two vac. - os) - (a) Applicants should have a Ph.D. degree and be able to teach Ecology and basic biology courses. Applicants will be required to undertake research and teaching on aspects of Ecology (some background in quantitative or physiological ecology would be an advantage). (b) Applicants should have a Ph.D. degree and be able to teach general courses such as Environmental Biology and/or Microbiology. Applicants will be required to undertake research and teaching on aspects of Environmental Microbiology (some experience with recombinant DNA technique would be an advantage). Applicants will be members of the Board of Studies in Biology and should be able to participate in activities of the Board.

Annual Salary:
Senior Lecturer: HK\$250,260 - 336,180 by 8 increments.
Lecturer: HK\$180,980 - 182,700 by 2 increments BAR
HK\$183,580 - 268,100 by 7 increments.
(Exchange rate approximately: US\$1 = HK\$7.8, £1 = HK\$10.5)

Starting salary and grade will depend on qualifications and experience. Conditions of Service: Benefits include long leave with pay, vacation leave, sick leave, superannuation (University 15%, appointee 5%), medical benefits, education allowance for children and housing allowance for those whose annual salary is HK\$171,840 or above, and for appointees on overseas terms, passage benefits for themselves and their dependants as well.

Application Procedure: Applications should be made out in duplicate, giving full particulars, experience and the names and addresses of 3 persons to whom reference may be made, and sent together with copies of certificates/diplomas/qualifications and recent publications to the Personnel Section, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong not later than January 15, 1986 for post (1) and December 15, 1985 for post (2). Please quote appropriate reference number and mark 'Recruitment' on cover.

(72151)

UNIVERSITY OF ULSTER

LECTURESHIP IN ELECTRICAL ENGINEERING at Jordanstown Ref: J85/221

To contribute to the teaching and laboratory development, to participate in course planning, curriculum development and supervision of students on industrial placement, and to engage in relevant research.

Applicants should hold a good honours degree and should have had teaching, industrial or research experience in the application of modern control techniques to heavy current electrical engineering.

Commencing salary will be determined by age, qualifications and experience within the range £7,820-£14,925 per annum (under review). Further details are available from the Staffing Office, University of Ulster at Jordanstown, Shore Road, Newtownabbey, Co. Antrim BT37 0QB. Telephone: 091 261111. Ext. 2243 to whom applications, including a full curriculum vitae and the names and addresses of two referees, should be sent not later than 18 October 1985. This post is open to both male and female applicants.

(72174)

University of Reading

LECTURESHIP IN MODERN OPTICS

Applications are invited for a Lectureship (tenable from 1 January 1986, or as soon as possible thereafter) within the Optics Group of the Department of Physics.

Candidates should have an active research interest in some aspect of applied optics. Salary scale £7,820 to £14,925 p.a. (review from 1 April 1986) plus US\$400 per annum.

Further particulars and application forms (2 copies) are available from the Personnel Office, University of Reading, Whiteknights, P.O. Box 217, Reading, RG6 2AH, telephone (0734) 875123 ext. 225. Please quote Ref. AC8511P.

Closing date 4 November 1985.

(72152)

University of Surrey

PROFESSOR OF TOURISM MANAGEMENT

Applications are invited from well qualified and experienced persons for the post of Professor of Tourism Management. The post holder will be responsible for the development and supervision of the Tourism Management programme, for the recruitment and training of staff, and for the development of research in the field of Tourism Management.

The appointment will be made within the range £13,070-£23,235 per annum (under review) plus superannuation. Further particulars are available from the Registrar, University of Surrey, Guildford, Surrey GU1 2HU, or Tel: 0481 571811. Ext. 633. Applications should be sent to the Registrar, University of Surrey, Guildford, Surrey GU1 2HU, not later than 15 November 1985.

(72153)

Universities continued



Applications are invited from the following posts for which applications should be sent to the Registrar, University of Sydney, Sydney, N.S.W. 2006, Australia.

The University of Sydney LECTURER (TENURABLE)

IN ARCHITECTURAL SCIENCE Reference no. 3814
Applications with degrees in engineering or architecture are invited to apply for this position which principally involves undergraduate and some postgraduate teaching in architectural structures. Additional teaching duties involve courses on building materials. The Department is very active in research and the appointee would be expected to participate in the Department's research activities. The position will be available from February 1986.

The University of Melbourne LECTURER (CONTINUING)

IN LINGUISTICS in the Department of English
Applications are invited from candidates with a first degree in linguistics and substantial postgraduate research experience in either or both of the following areas of general grammar: 1. Generative syntax (i.e. government-binding theory); 2. Generative phonology (i.e. morphological theory). In addition, preference will be given to applicants with a strong research interest in sociolinguistics. The successful applicant will be required to teach a variety of course-offerings in a three-year undergraduate program, to supervise postgraduate research, and to conduct seminars on topics in areas of higher academic interest. Only applicants who are in the position to accept appointment from the date of commencement of the appointment will be considered. The appointment will be from 1 July 1986. Further printed information regarding details of application procedure and conditions of appointment is available from the Registrar, University of Melbourne, Parkville, Victoria 3010, Australia. 25 October 1985.

The University of Newcastle LECTURER/SENIOR LECTURER

(SMALL BUSINESS AND ENTREPRENEURSHIP)
Department of Management
The University invites applications from suitably qualified men and women for appointment as Lecturer or Senior Lecturer in the Department of Management. The appointee will be responsible for the teaching and supervision of students in the area of small business management and entrepreneurship. The appointee will have postgraduate qualifications (preferably a doctorate) in an appropriate field, have extensive experience in teaching and research, and have a strong research interest in small business management and entrepreneurship. The appointee will be expected to contribute to the development of the Department of Management, to engage in research, and to supervise postgraduate research. The appointee will be expected to teach a variety of course-offerings in a three-year undergraduate program, to supervise postgraduate research, and to conduct seminars on topics in areas of higher academic interest. Only applicants who are in the position to accept appointment from the date of commencement of the appointment will be considered. The appointment will be from 1 July 1986. Further printed information regarding details of application procedure and conditions of appointment is available from the Registrar, University of Newcastle, Newcastle, New South Wales 2308, Australia. 25 October 1985.

James Cook University of North Queensland LECTURER IN ITALIAN

DEPARTMENT OF MODERN LANGUAGES
Applications will be expected to hold postgraduate qualifications in Italian (degree or equivalent Italian qualifications), have experience and familiarity with modern methods of language teaching and to have resided in Italy for at least one year. There will be opportunity to develop further research interests according to interests and experience. This position is within a rapidly developing area of academic activity and there are excellent opportunities for research and publication. The appointee will be expected to contribute to the development of the Department of Modern Languages, to engage in research, and to supervise postgraduate research. The appointee will be expected to teach a variety of course-offerings in a three-year undergraduate program, to supervise postgraduate research, and to conduct seminars on topics in areas of higher academic interest. Only applicants who are in the position to accept appointment from the date of commencement of the appointment will be considered. The appointment will be from 1 July 1986. Further printed information regarding details of application procedure and conditions of appointment is available from the Registrar, James Cook University of North Queensland, Townsville, Queensland 4811, Australia. 25 October 1985.

THE UNIVERSITY OF LEEDS COUNSELLING AND CAREER DEVELOPMENT UNIT

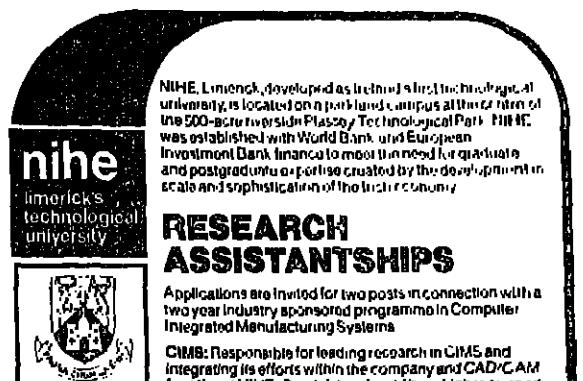
Applications are invited for two posts:
(i) Full time post of Project Officer to assist with the training and secondment programme, available immediately for a fixed term until 31 August 1986.
(ii) Half time post of Training Officer to assist with the CDDU training programme, available immediately for a fixed term until 31 March 1986.

Both posts require a minimum of a good honours degree and experience in any combination of education, training and counselling would be an advantage. Salary on Grade 1A (£7,820-£12,150) (under review) for other Related Staff, according to age, qualifications and experience.

Informal enquiries may be made to the Director of the Unit, Mrs. B. Pearce at 41 Clarendon Road, Leeds 2 (tel: (0532) 431510).

Application forms and further particulars may be obtained from the Registrar, The University, Leeds LS2 9JT, quoting reference number 84/15. Closing date for applications: 25 October 1985.

(72156)

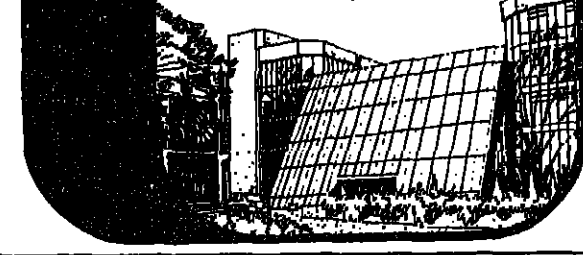


RESEARCH ASSISTANTSHIPS

Applications are invited for two posts in connection with the development of machinery data for different tool and workpiece materials within the sponsoring company and the NIHE. Candidates should have a good honours degree in mechanical production engineering and preferably experience in CNC Programming.

CANDIDATES FOR THESE POSTS WILL BE EXPECTED TO REGISTER FOR HIGHER DEGREES
SALARY: £18,000-£19,000 p.a.

Application material available from the Personnel Department, The National Institute for Higher Education, Limerick, Ireland, should be completed and returned by 21 October 1985.



THE CITY UNIVERSITY CENTRE FOR CONTINUING EDUCATION Outreach Worker

Applications are invited from University graduates for the temporary post of Outreach Worker, to be based in the Centre for Continuing Education. Candidates should have experience of adult education and outreach or community education, and be familiar with the needs of educationally disadvantaged groups in inner cities.

The duties of the successful candidate will be to provide educationally disadvantaged groups (e.g. some ethnic minorities and the unemployed) with opportunities to take up Extra Mural Studies. This will be done by strengthening this University's involvement with the agencies of educational provision, in particular with the Open College of City and East London. The post will be a fractional appointment of 0.8 of a full-time University Lectureship, full-time scale £8,817 to £16,222 inclusive of London Allowance. Salary will be pro-rata. It is hoped that the post will commence as soon as possible, but funding will last only until the end of October 1986 in the first instance.

Further particulars and application forms may be obtained from: The Academic Registrar's Office, The City University, Northampton Square, London EC1V 9HB, telephone 01-253 4399 ext. 1037. Closing date 25th October, 1985. (72167)

Royal Holloway and Bedford New College LECTURESHIP IN STRUCTURAL GEOLOGY

Applications are invited for this post in the Geology Department from candidates with strong research interests and experience in quantitative techniques.

The appointee will contribute to both undergraduate and postgraduate teaching (particularly a new MSc course in Basin Evolution and Dynamics).

Salary in the Lecturer scale £7,520 - £14,925 a year (under review), plus London allowance of £1,297 a year.

Further details may be obtained from the Personnel Office, Royal Holloway and Bedford New College, Egham Hill, Egham, Surrey, TW20 0EX to whom applications (two copies), with full curriculum vitae and the names and addresses of two referees, should be sent by 18 October 1985. (72168)

University of Edinburgh TEMPORARY LECTURER IN THE HISTORY OF SCIENCE AND MEDICINE

Applications are invited for a temporary Lectureship in the History of Science and Medicine. The appointee will be expected to contribute to the teaching and supervision of students in the area of the history of science and medicine. The appointee will be expected to teach a variety of course-offerings in a three-year undergraduate program, to supervise postgraduate research, and to conduct seminars on topics in areas of higher academic interest. Only applicants who are in the position to accept appointment from the date of commencement of the appointment will be considered. The appointment will be from 1 July 1986. Further printed information regarding details of application procedure and conditions of appointment is available from the Registrar, University of Edinburgh, Edinburgh, Scotland EH8 9JY. 25 October 1985.

University of Botswana LECTURER/SENIOR LECTURER

IN THE DEPARTMENT OF ECONOMICS
The University of Botswana invites applications for the post of Lecturer or Senior Lecturer in the Department of Economics. The appointee will be responsible for the teaching and supervision of students in the area of economics. The appointee will be expected to teach a variety of course-offerings in a three-year undergraduate program, to supervise postgraduate research, and to conduct seminars on topics in areas of higher academic interest. Only applicants who are in the position to accept appointment from the date of commencement of the appointment will be considered. The appointment will be from 1 July 1986. Further printed information regarding details of application procedure and conditions of appointment is available from the Registrar, University of Botswana, Gaborone, Botswana. 25 October 1985.

University of Otago LECTURER IN THE HIGHER EDUCATION DEVELOPMENT CENTRE

This Centre was established to help improve, by research and development, the quality and effectiveness of teaching and learning in higher education. The appointee will be expected to contribute to the development of the Centre, to engage in research, and to supervise postgraduate research. The appointee will be expected to teach a variety of course-offerings in a three-year undergraduate program, to supervise postgraduate research, and to conduct seminars on topics in areas of higher academic interest. Only applicants who are in the position to accept appointment from the date of commencement of the appointment will be considered. The appointment will be from 1 July 1986. Further printed information regarding details of application procedure and conditions of appointment is available from the Registrar, University of Otago, Dunedin, New Zealand. 25 October 1985.

(72169)

Royal Postgraduate Medical School (University of London)

FINANCE OFFICER

salary c £20,000 a year

Applications are invited for the post of Finance Officer, from qualified accountants with experience in modern management accounting. The Finance Officer will be responsible to the Secretary for the financial management of the School.

Salary on the appropriate academic-related salary grade at about £20,000 a year depending on qualifications and experience. Superannuation under USS.

Further particulars should be obtained from: The Secretary, Royal Postgraduate Medical School, Homersmith Hospital, DuCane Road, London W12 0HS. Closing Date 31 October 1985. (72170)

University of Oxford COMPUTING TEACHING OFFICER

The Computing Teaching Centre is an small but rapidly expanding department which provides tuition to both undergraduate and postgraduate students in the use of computers. The Computing Teaching Officer will be responsible for the teaching and supervision of students in the area of computing. The appointee will be expected to teach a variety of course-offerings in a three-year undergraduate program, to supervise postgraduate research, and to conduct seminars on topics in areas of higher academic interest. Only applicants who are in the position to accept appointment from the date of commencement of the appointment will be considered. The appointment will be from 1 July 1986. Further printed information regarding details of application procedure and conditions of appointment is available from the Registrar, University of Oxford, Oxford, England. 25 October 1985.

University of Dundee LECTURER

In the above Centre which has an international reputation in research in the use of computers in education and assessment, in which areas it provides not only tuition but also a wide range of courses and research opportunities. The appointee will be expected to contribute to the development of the Centre, to engage in research, and to supervise postgraduate research. The appointee will be expected to teach a variety of course-offerings in a three-year undergraduate program, to supervise postgraduate research, and to conduct seminars on topics in areas of higher academic interest. Only applicants who are in the position to accept appointment from the date of commencement of the appointment will be considered. The appointment will be from 1 July 1986. Further printed information regarding details of application procedure and conditions of appointment is available from the Registrar, University of Dundee, Dundee, Scotland. 25 October 1985.

The appointee will be expected to teach a variety of course-offerings in a three-year undergraduate program, to supervise postgraduate research, and to conduct seminars on topics in areas of higher academic interest. Only applicants who are in the position to accept appointment from the date of commencement of the appointment will be considered. The appointment will be from 1 July 1986. Further printed information regarding details of application procedure and conditions of appointment is available from the Registrar, University of Dundee, Dundee, Scotland. 25 October 1985.

Further particulars may be obtained from: The Registrar, University of Dundee, Dundee, Scotland. 25 October 1985. (72171)

University of Durham FLUID MECHANICS ASSISTANT

Applications are invited for a post of Fluid Mechanics Assistant. The appointee will be responsible for the teaching and supervision of students in the area of fluid mechanics. The appointee will be expected to teach a variety of course-offerings in a three-year undergraduate program, to supervise postgraduate research, and to conduct seminars on topics in areas of higher academic interest. Only applicants who are in the position to accept appointment from the date of commencement of the appointment will be considered. The appointment will be from 1 July 1986. Further printed information regarding details of application procedure and conditions of appointment is available from the Registrar, University of Durham, Durham, England. 25 October 1985.

Further particulars may be obtained from: The Registrar, University of Durham, Durham, England. 25 October 1985. (72172)

University of Dundee GRADUATE ASSISTANT

Graduates who hold an appropriate honours degree in a physical science and a physical education teaching qualification are invited to apply for the post of Graduate Assistant. The appointee will be responsible for the teaching and supervision of students in the area of physical education. The appointee will be expected to teach a variety of course-offerings in a three-year undergraduate program, to supervise postgraduate research, and to conduct seminars on topics in areas of higher academic interest. Only applicants who are in the position to accept appointment from the date of commencement of the appointment will be considered. The appointment will be from 1 July 1986. Further printed information regarding details of application procedure and conditions of appointment is available from the Registrar, University of Dundee, Dundee, Scotland. 25 October 1985.

Further particulars may be obtained from: The Registrar, University of Dundee, Dundee, Scotland. 25 October 1985. (72173)

University of Otago LECTURER IN THE HIGHER EDUCATION DEVELOPMENT CENTRE

This Centre was established to help improve, by research and development, the quality and effectiveness of teaching and learning in higher education. The appointee will be expected to contribute to the development of the Centre, to engage in research, and to supervise postgraduate research. The appointee will be expected to teach a variety of course-offerings in a three-year undergraduate program, to supervise postgraduate research, and to conduct seminars on topics in areas of higher academic interest. Only applicants who are in the position to accept appointment from the date of commencement of the appointment will be considered. The appointment will be from 1 July 1986. Further printed information regarding details of application procedure and conditions of appointment is available from the Registrar, University of Otago, Dunedin, New Zealand. 25 October 1985.

Further particulars may be obtained from: The Registrar, University of Otago, Dunedin, New Zealand. 25 October 1985. (72174)

University of Edinburgh TEMPORARY LECTURER IN THE HISTORY OF SCIENCE AND MEDICINE

Applications are invited for a temporary Lectureship in the History of Science and Medicine. The appointee will be expected to contribute to the teaching and supervision of students in the area of the history of science and medicine. The appointee will be expected to teach a variety of course-offerings in a three-year undergraduate program, to supervise postgraduate research, and to conduct seminars on topics in areas of higher academic interest. Only applicants who are in the position to accept appointment from the date of commencement of the appointment will be considered. The appointment will be from 1 July 1986. Further printed information regarding details of application procedure and conditions of appointment is available from the Registrar, University of Edinburgh, Edinburgh, Scotland. 25 October 1985.

Further particulars may be obtained from: The Registrar, University of Edinburgh, Edinburgh, Scotland. 25 October 1985. (72175)

University of Botswana LECTURER/SENIOR LECTURER

IN THE DEPARTMENT OF ECONOMICS
The University of Botswana invites applications for the post of Lecturer or Senior Lecturer in the Department of Economics. The appointee will be responsible for the teaching and supervision of students in the area of economics. The appointee will be expected to teach a variety of course-offerings in a three-year undergraduate program, to supervise postgraduate research, and to conduct seminars on topics in areas of higher academic interest. Only applicants who are in the position to accept appointment from the date of commencement of the appointment will be considered. The appointment will be from 1 July 1986. Further printed information regarding details of application procedure and conditions of appointment is available from the Registrar, University of Botswana, Gaborone, Botswana. 25 October 1985.

Further particulars may be obtained from: The Registrar, University of Botswana, Gaborone, Botswana. 25 October 1985. (72176)

University of Otago LECTURER IN THE HIGHER EDUCATION DEVELOPMENT CENTRE

This Centre was established to help improve, by research and development, the quality and effectiveness of teaching and learning in higher education. The appointee will be expected to contribute to the development of the Centre, to engage in research, and to supervise postgraduate research. The appointee will be expected to teach a variety of course-offerings in a three-year undergraduate program, to supervise postgraduate research, and to conduct seminars on topics in areas of higher academic interest. Only applicants who are in the position to accept appointment from the date of commencement of the appointment will be considered. The appointment will be from 1 July 1986. Further printed information regarding details of application procedure and conditions of appointment is available from the Registrar, University of Otago, Dunedin, New Zealand. 25 October 1985.

(72177)

REMINDER
COPY FOR CLASSIFIED ADVERTISEMENTS IN THE THES
SHOULD ARRIVE
NOT LATER THAN
10AM MONDAY
PRECEDING
PUBLICATION

THE AUSTRALIAN NATIONAL UNIVERSITY

Applications are invited from suitably qualified men and women for appointment to the following positions:

Faculty of Arts
Department of Geography
LECTURER IN GEOGRAPHY
Applicants should have expertise in geomorphology and landscape evolution; field research experience in Australia is essential. The appointee will be required to teach undergraduate courses covering landscape evolution, surficial processes, Quaternary geomorphology, geographic information systems and to contribute to the supervision of postgraduate students. The position is tenable from 1 January 1986.

Closing date: 1 November 1985. Ref: FA 19.3.1

FIXED TERM LECTURER IN GEOGRAPHY

Applicants in the field of applied geography will be preferred, although persons well qualified in other fields of physical geography who are able to teach the requisite courses are also invited to apply.

The appointee will be required to teach courses on atmospheric processes and environment, environmental hazards, applied climatology and to contribute to a new course on Geographic Information Systems. The position is tenable from early 1986 until the end of 1988.

Closing date: 1 November 1985. Ref: FA 19.3.2

Faculty of Science

Department of Computer Science LECTURER/SENIOR LECTURER

The appointee will be expected to undertake research in an area of Computer Science, contribute to the Department's undergraduate teaching program and supervise graduate students. Teaching interests in the Department (headed by B. B. Bentley) include: Algorithms, Artificial Intelligence, Database Theory, Computational Complexity, Computer Architecture, Interactive Graphics, Program Development Environments, Programming Theory and Language and Software Engineering.

Applicants should have a Ph.D. in Computer Science (or a closely related discipline) and experience in Computer Science teaching and research. The Department wishes to strengthen its research and teaching in the field of Computer Science and Software Engineering areas; preference may be given to applicants whose current interests are in those or closely related areas.

Closing date: 15 December 1985. Ref: FS 19.3.1

Department of Psychology

FIXED TERM LECTURER IN PSYCHOLOGY

The appointment will be for a fixed term of three years and will be available from 1 January 1986. Applicants should have a research background in, and be able to teach, undergraduate courses in the field of psychology. An interest in the development of behaviour, learning or human information processing would be an advantage.

Closing date: 11 November 1985. Ref: PS 19.3.2

CONDITIONS OF APPOINTMENT:

Salary will be in accordance with qualifications and experience within the ranges: Lecturer \$25,200 - \$34,407 p.a.; Senior Lecturer \$36,200 - \$41,025 p.a.; current exchange rate: \$A1 = UK£2.00.

Applicants as Lecturers/Senior Lecturers, unless otherwise stated, will be for four years in the first instance with the possibility, after review, of appointment to senior grade. Grants are provided towards travel and removal. Assistance towards housing is given to an appointee from outside Canberra. Eligible appointees will be required to sign the superannuation scheme for Australian Universities. Maternity leave is available. The University reserves the right to make an appointment or to make an appointment by invitation at any time.

Applicants should quote the advertisement reference number when requesting further particulars and when submitting applications, which should be sent to the Acting Registrar of the University, GPO Box 4, Canberra, ACT 2601, Australia. Further particulars are available from the Secretary, Australian Association of Commonwealth Universities (AACU), 3 Gordon Square, London WC1H 0PF.

THE UNIVERSITY IS AN EQUAL OPPORTUNITY EMPLOYER. (72178)

Colleges of Further Education continued

GLOUCESTERSHIRE COLLEGE OF ARTS AND TECHNOLOGY RESEARCH POSTS

APPLICATIONS ARE INVITED FOR (i) READER IN ADVANCED STUDIES to promote research and consultancy within the College and undertake research in an area of study relevant to the College's work. Burnham Grade Salary.

(ii) RESEARCH ASSISTANT in the Department of Computing Electronic and Mathematical Studies for a two year period in the first instance. An interest in research with an industrial application and some experience of ALVEY systems are desirable. Salary scale (under review) £4,910-£6,906. Applications for both posts by letter before 18th October to Administrative Officer (Staffing) Gloucester, Oxtalis Lane, Gloucester G12 9HW, from whom further details may be obtained on receipt of a stamped addressed envelope. (72175)

Research and Studentships

Economic and Social Research Council RESEARCH CONSULTANT/SCIENTIFIC SECRETARY

DRUG ADDICTION RESEARCH INITIATIVE

Applications are invited for a Consultant to act as Scientific Secretary to the Drug Addiction Research Steering Committee. The Committee is composed of civil servants and academics and is financed by a number of Government departments. It proposes to undertake a review of drug addiction research and to produce a report on future research needs.

The Scientific Secretary will be expected to service the Committee, commission research reviews, consult appropriate bodies at home and abroad and produce various reports including the draft final report of the committee.

The successful candidate is likely to have experience in social or medical research or in research management. He or she will not be employed by the Council but will work as a Consultant. It is expected that the appointment will last for nine months but a shorter period would also be considered. A part-time appointment would also be considered. It is likely that payment would be at a rate equivalent to the UGC senior lecturer scale or Home Civil Service principal grade scale. It is hoped to make an appointment as soon as possible and in any case no later than 1 January 1986.

Further details and an application form may be obtained from Mr J P Moore, ESRC, 1 Temple Ave, London EC4. (72161)



TEESIDE POLYTECHNIC Department of Design RESEARCH ASSISTANT - NAB RESEARCH INITIATIVE

Applications are invited from SOCIAL SCIENTISTS for a 3 year appointment to work as part of an interdisciplinary team within the field of Design-Integrated Manufacturing (DIM). The person appointed will be responsible for the final end of the project that is for an appraisal of both design and production requirements of an integrated system and the product category to be designed. Candidates should have a good knowledge of design for manufacture and ergonomics. It is expected that the appointment will be for a period of 3 years. Salary will be in the range of £5,910-£6,906 per annum. Further particulars and application forms may be obtained from the Personnel Section, Teeside Polytechnic, Borough Road, Middlesbrough, Cleveland TS1 3BA. Tel: 0642 218121 ext 4111. Informal enquiries should be made to Dr T W A Woodhead ext 4375. Closing date for applications: 14 October 1985. Cleveland County Council is an Equal Opportunity Employer. (72173)

University of Bradford

RESEARCH ASSISTANT IN CIVIL ENGINEERING - (Fixed-Term Appointment - 2 years)

Applications are invited for the above post to work on a project funded by the SERC Marine Technology Directorate and industry concerning the temperature rise and thermal cracking of full-scale grouted supports for offshore pipelines. Applicants should possess a good first degree and preferably Ph.D. in civil engineering or materials science. Salary range £6800 - £8200 p.a. Superannuable. Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

THE FLINDERS UNIVERSITY OF SOUTH AUSTRALIA



POST-GRADUATE RESEARCH SCHOLARSHIPS

Flinders University invites graduates to apply for Research Scholarships to undertake post-graduate study in 1986.

The University wants students of high calibre to further its record of consistent leadership in research.

Flinders University has been repeatedly awarded significant research grants by funding bodies relying heavily on independent assessments of research projects and research workers.

In 1985 such outside support amounted to some \$A7 million, with the university through its own Research Committee providing a further \$1.6 million. In a little under 20 years, Flinders University has established an ability consistently to attract more external funding per capita than the other Australian tertiary institutions.

Intending applicants for Flinders University Research Scholarships should hold a first class honours degree or at least 2A honours level or equivalent.

The scholarships are supported by significant Research Maintenance and Research Travel allowances.

Flinders University is situated on an attractive foothills site overlooking the Adelaide Plains, 25 minutes from the city centre and within easy reach of recreational facilities.

Studies may be undertaken in any one of the following Schools: Humanities; Social Sciences; Mathematical Sciences; Physical Sciences; Biological Sciences; Earth Sciences; Medicine; Education and in Theology.

For more information on areas of study within these Schools and post-graduate opportunities at Flinders University contact:

The Registrar,
Flinders University of South Australia,
BEDFORD PARK S.A. 5042
Telephone (08) 275 2160

Applications for Post-graduate Scholarships must be received by 31st October, 1985.

University of Dundee

RESEARCH VACANCIES

Applications are invited for two vacancies available in the above Department.

The first post is for a well-qualified and experienced graduate to undertake a two-year study of changing residential need and staff activities in residential care for severely disabled adults. The appointee's experience need not however have been in this specific field.

The second post is for a well-qualified graduate with research or social work experience to undertake a one-year study concerned with the implementation of the revised sentencing arrangements for young adult offenders.

Salaries will be dependent on qualifications and experience. The post holder will receive £8,940 per annum for the first year and £9,980 for the second.

Applications containing full curriculum vitae and the names of three referees should be sent by 25th October 1985 to the Personnel Officer, University of Dundee, 151/151N from whom further particulars are available. Please include reference ES79/85(C). (72182)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

The University of Sheffield

TWO RESEARCH ASSISTANTS IN AUTOMATIC SPEECH RECOGNITION

(Range 1A and Range 1B)

Applications are invited from persons suitably qualified in computer science, phonetics or related disciplines for the above posts, which are concerned with an ALVEY project in automatic speech recognition systems. The project is closely linked to the ALVEY Machine Assisted Transcription demonstration. The post will be for three years, to commence as soon as possible.

It is anticipated that one appointment will be made on Range 1A (£8,940 p.a.) and one on Range 1B (£9,980 p.a.). The post holder will receive £8,940 per annum for the first year and £9,980 for the second.

Applications containing full curriculum vitae and the names of three referees should be sent by 25th October 1985 to the Personnel Officer, University of Sheffield, 151/151N from whom further particulars are available. Please include reference ES79/85(C). (72182)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

UMIST

RESEARCH ASSOCIATE

As part of the SERC 'Corporation and Accountability' Initiative, applications are invited for the above post in the project 'Accounting Regulation as Corporate Control'.

Candidates with a background in sociology, political science, economics or accounting are encouraged to apply. A knowledge of accounting techniques is not required; the project is concerned with the role of accounting in society. Please contact David Cooper (061-256 3311), Tony Lowe or 757, P.O. Box 88, Manchester M60 1QD, to whom applications should be sent by 11 October 1985. (72182)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Research and Studentships continued

University of Surrey

RESEARCH ASSISTANTSHIP

Applications are invited for a Research Assistantship under the Director, Professor W. Wallace, to work on a three-year project funded by the Department of Education, Science and Arts, Government of Western Australia. The project is concerned with the study of the development of the language and training of 14-15 year olds.

The person appointed will be based in London at a salary of £6,800 p.a. with superannuation benefits.

Further details can be obtained from the Registrar, University of Surrey, Box 344, Guildford GU1 2XH. Closing date: 15 October 1985. (72183)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Research and Studentships continued

University of Glasgow

RESEARCH ASSISTANTSHIP

A graduate research assistant is required from January 1986 for 2 months full-time or up to 18 months part-time to work on a project funded by the British Academy to investigate 'Cultural mapping by European states, 1630 to 1880'. Candidates should be experienced historical researchers and have a knowledge of one or more of the relevant languages: Polish, Hungarian, Czech/Slovak, German, Old Slavonic language is essential.

The person appointed will be based in London at a salary of £6,800 p.a. with superannuation benefits.

Further details can be obtained from the Registrar, University of Glasgow, Box 344, Glasgow G1 2XH. Closing date: 15 October 1985. (72183)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

University of Exeter

RESEARCH ASSISTANT

A graduate research assistant is required from January 1986 for 2 months full-time or up to 18 months part-time to work on a project funded by the British Academy to investigate 'Cultural mapping by European states, 1630 to 1880'. Candidates should be experienced historical researchers and have a knowledge of one or more of the relevant languages: Polish, Hungarian, Czech/Slovak, German, Old Slavonic language is essential.

The person appointed will be based in London at a salary of £6,800 p.a. with superannuation benefits.

Further details can be obtained from the Registrar, University of Exeter, Box 344, Exeter EX4 4JL. Closing date: 15 October 1985. (72183)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes 40274-734669. (72181)

Application forms and further particulars from the Deputy Secretary, Ref: RAUC/SLTA, University of Bradford, West Yorkshire, BD7 4DP. Informal enquiries to Professor G S Littlejohn or Dr D C Hughes